The National Locksmith

The National Locksmith®

November 1993
Volume 64, No.11

This issue:
KEYS AND KEY MACHINES

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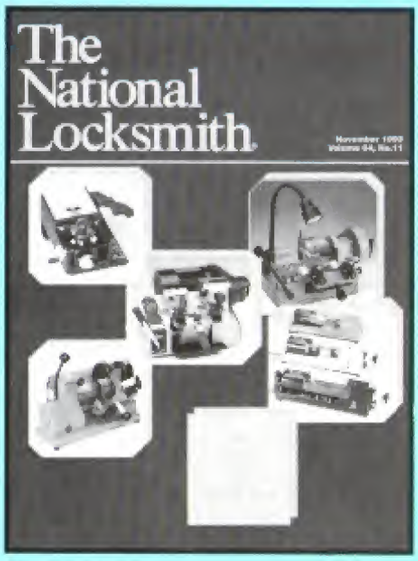

On The Cover

This month we are featuring Keys and Key Machines. Products on our cover are (in alphabetical order): Di Mark International; Framon Mfg.; HPC, Inc.; Scotsman Security Products; Silca Keys U.S.A.

Departments

Click on the article you wish to read

National Publishing Co.

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The Audit Bureau

COMMENTARY

CRIME PREVENTION™
To Educate the Consumer!


Marc Goldberg
Editor/Publisher

I have the news of the century for you! What has been the biggest problem in locksmithing and security? What threatens to erode and shrink our industry? The answer in a word is EDUCATION.

What do you mean, Marc? Well, the public is so uneducated about locksmithing and security that the average person has very little knowledge of what you do for a living. Therefore, they don't think to visit or call their local Security Professional when they need locks or security services. Instead they run to a chain hardware store or home center where the staff may know more about selling a power tool than security products.

Everyone in our business knows the public needs to be educated about you, the Security Professional. But how can we do this? How can we start to inform the general population about the right application for the right lock? How can we educate them about the wide range of security services we offer?

The National Locksmith magazine has the answer to this problem! We are just about to launch a new publication called *CRIME PREVENTION™*. This consumer, tabloid sized news-magazine will be written by Security Professionals to educate the public about the many ways they can defend themselves against crime. *CRIME PREVENTION™* will talk about how to choose proper locks, selecting appropriate hardware, and who to call when they need any number of security services like masterkeying, car opening, security surveys and more.

This exciting new full color tabloid will be published quarterly, starting with the Spring 1994 edition. And the best news is that we will print 250,000 copies of each issue to circulate to individuals with an interest in protecting themselves from crime. All the articles will contain practical and interesting information about how the public can avoid becoming a victim. And most importantly, it establishes you, the Security Professional, as the source for crime prevention products and services.
We believe that *CRIME PREVENTION™* will be the answer to a prayer in our industry. For the first time, manufacturers will be able to reach a quarter million consumers with the most interest in purchasing their products without being hidden in the clutter of other unrelated advertising.

Combined with the editorial focus of the publication, the public will most certainly want to purchase security products and services. And they will be subtly directed to you...the Security Professional! Thus, the manufacturer wins when he sells more of his product. The distributor wins when he sells more of it to you. And you win because you are ordering more product as a result of your increased sales to the public.

Also very important is that the publication will raise the public awareness of the Security Professional as their total security source. Thus, they will seek you out not only for products, but also services.

In the next issue of *The National Locksmith* we will be telling you more about *CRIME PREVENTION™* and how you may personally benefit from this powerful program. The projected pass along ratio for most publications is that 2.5 people read each issue. Thus, over 600,000 consumers will read *CRIME PREVENTION™*!

I have a program in mind that will allow you, the individual locksmith, to use *CRIME PREVENTION™* magazine as your own personal marketing tool. No longer will you have to suffer the pangs of knowing that people are not educated about professional security. When we announce the rest of our program, you will be able to easily do something about this problem.

Clearly, *CRIME PREVENTION™* will help you build customer awareness of professional security. And that, my friends, will help you build your business. And that's what National Publishing Co.–publishers of *The National Locksmith*–is all about!

Marc Goldberg

LETTERS

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length. Please address your comments, praise, or criticism to Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

Sara Provides Reader's Rx For A Smile

Dear Marc:

Thank you, Sara, for your great articles found in this magazine. I very much enjoy them. We need something to lift our spirits every once in a while.

I would very much like to have a copy of your book "Service With A Smile" but I need to know how much money to send to you. If you would let me know, I will send you a bank draft in U.S. funds to pay for it. You have a talent as I see it.

Thanks again for your articles.

Tom McKay
Canada

Editors note:

Thanks for the compliments. Service With A Smile , Sara's excellent book is available from this magazine. Simply send $14.95 plus $3 shipping and handling. We'll rush you a copy of the funniest book ever written for locksmiths.

Reader Displays Safe and Vault Key Collection

Dear Marc:

Being a great fan of *The National Locksmith*, I thought I would share with you my collection of safe & vault service keys. A majority of my collection was purchased from a fellow lock & safe technician named Jay Felch. (Yes the inventor of the Jay Felch Tool as Marketed by Lockmasters). His collection consisted of over 100 pieces. Pictured are over 70 of my favorites (see photograph 1). All different, it consists of keys for Diebold, S & G, Mosler, LaGard, Yale, Dexter Safes and Vaults, and others. My favorites are the Dexter Keys (upper middle). Two of the three were professionally made according to specifications taken from original locks, and the third was made by hand by Jay himself. From my understanding Dexter change keys were not manufactured by the company but were hand made by apprentice safemen when hired by Dexter. These keys along with the entire collection are tried and true. Included is a set of lever keys which are needed to gain access to some of the older Yale combination vault locks. Also pictured are a variety of specialized service keys for several different manufacturers of vault locks including some for safe deposit locks.

Safe and vault service keys

Harry W. Williamson, CRI.
New Jersey

A Locksmith's List Of Priorities

Dear Marc:

As a locksmith, these are a few things I would never do:

1) Tell a customer I don't mind pets, while trying to install a deadbolt on a house door.

Or unlocking a house with the guard dog on the other side of the door.

2) Interfere with a husband while he's arguing with his wife over the cost of your device.

3) Enter an abandoned house in

Continued on page 8

Continued from page 6

the summertime without fly spray. All day you itch!

4) My dentist locked himself out one morning and wanted to take my services out in trade.

5) Never remove a steering wheel without a wheel puller. (I might need that dentist.)

6) Forget to lock the lid on pin kit.

But, the next time a customer brings in two halves of a key and says he needs another one just like it, I might make it.

The other day my wife locked all her keys in her car where she works. When she called me at work she thought it was funny, disguising her voice and asking if I open cars for little old women. When I discovered it was her, I said the service call was $34. She said this is your wife are you busy? I asked, are you a paying customer? You know that reply! So I made her wait until after 5:00.

Take that.

Brad's Lock & Key,
Ohio

Strong Arm Company Keeps Customer Happy

Dear Marc;

The first time we used our new Strong Arm Drill Rig, the Bosch 1194 drill motor stuck on the hammer function.

The day after I talked to Bob Volosing at Strong Arm, I received another new drill motor UPS Next Day Air.

This is what I call service after the sale. Thank you Bob, you really know how to keep a locksmith happy.

Jerry Jones, CRL
Mississippi

Reader Takes Advantage of Roadside Assistance

Dear Marc;

I read the article in September 1993 edition about the Alpha (Tech. ignition), the article was enlightening.

However, as a professional and dealing with customers I have found two things to hold true. Customers expect quick generation of keys for the J and N body car, by code or duplication. To do this many locksmiths are working with GM and local dealerships by being placed in a GM Roadside Assistance Computer for 24 hour customer service.

There is a responsibility on the locksmiths who professionally do this service. They must request a valid drivers license and vehicle registration from the owner at time of service. Because GM checks out how each customer problem is usually handled by the service provider. I respect that and feel this helps cut down on auto theft and theft of personal property.

And to quote Foley-Belsaw, all the locksmith needs to generate these keys is what we should have - keys, code books, proper cutting equipment and the GM Roadside Assistance phone numbers.

So it might be to the advantage of all of us Professionals to lock in on this money making opportunity.

Willie Bowen
Virginia

Locksmith Turns Painter To Identify Locks and Keys

Dear Marc;

Shame on you Sara Probasco! When your customer asks for a Purple padlock, all you had to do was take out your nail polish and paint the lock! It doesn't take a genius to color code keys and locks. You have five locks and five matching keys and then you paint five stripes on the master. Can't find the lock? Paint it with a little white out or Liquid Paper.

David Pokrywka
Connecticut

TECHNITIPS

Helpful hints from fellow locksmiths

by Robert Sieveking

Send in your tips and win.

HOW TO ENTER

All you need to do is submit a tip, covering any aspect of locksmithing to ***The National Locksmith.*** Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Why not write it down and submit it to: *Robert Sieveking, Technitips' Editor,* ***The National Locksmith****, 1533 Burgundy Parkway, Streamwood, IL 60107.* Tips submitted to other industry publications will not be eligible! So get busy and send in your tips today. You may win cash merchandise, or even one of many key machines or code book sets. At the end of the year, we choose the winners of the listed prizes. Last year dozens of people walked off with money and prizes. Wouldn't you like to be one of the prize winners for 1993? Enter today! It's a lot easier than you think.

EVERY TIP WINS "LOCKSMITH BUCKS!"

Yes, every tip published wins a prize. But remember, you must submit your tip to ***The National Locksmith*** exclusively. Each and every tip published in Technitips wins you $25 in Locksmith Bucks! Use this spendable cash toward the purchase of any books or merchandise from ***The National Locksmith***. You will also receive a Bonded Locksmith bumper sticker and decal. Plus you will be eligible for really big prizes.

BEST TIP OF THE MONTH

If your tip is chosen as the best tip of the month, you will win $50 in cash as well as $35 in Locksmith Bucks! And you will receive a Bonded Locksmith bumper sticker, decal and a Locksmith cap. Plus, you may win one of the annual prizes.

These Prizes Awarded Each Month!

- All-Lock A 7000 VATS Decoder
- HPC Pistolpick
- Silca Rubberhead Keyblanks (100 Blanks)
- ESP PR-13 Professional Lock Pick Set
- Sieveking Products EZ-Pull GM Wheel Puller
- Fort Lock Backer Board Display Panel

Submit your tip and win!

There are also two new addition to the year end prize list:

- 10th Prize: AccuMark key and lock stamp
- 11th Prize: Plastic headed key embosser

(See page 10 for complete list of year end prizes.)

November's Best Tip

If you have call to make an ignition key for the '92 Beretta, this Technitip is one you'll want to study. The air bag column, used in the '92 Beretta has a slightly longer tiller shaft above the lock plate. The standard lock plate compressor will not push the lock plate down far enough to remove the retaining ring. There are two solutions to this problem. If you are faced with the problem, and have not prepared your lock plate compressor, simply slip two 5/16" nuts under the legs of the lock plate compressor as you tighten it over the lock plate. The 1/4" added height will allow you to compress the lock plate spring and remove the retaining ring. This method may require a little juggling and careful tightening, but it will work.

If you are a locksmith that likes to be prepared for problems before they arise, refer to illustration one. Two modifications have been made to this standard GM lock plate compressor. The first modification, at "1," was the addition of a box end wrench over the compressor nut. The wrench was cut off and the cut end ground smooth. It was then welded over the nut. It would have been just as effective to Epoxy the wrench in place. This mod eliminates the need for a separate wrench to use the tool. The second modification is at "2" in the

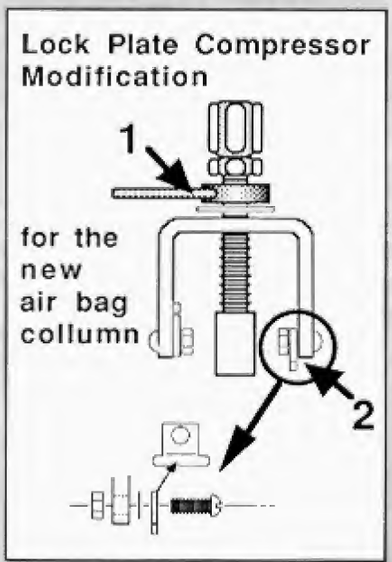

Illustration 1

illustration. This modification is the addition of flip down extension feet. They are assembled as you see in the detail. They were originally part of another lock plate compressor. The legs of the compressor were cut off, as illustrated, and drilled to accommodate a 1/4" machine screw. The lock plate compressor being modified was drilled to accept the same 1/4" screw. The flip down extension feet were then assembled over a tension washer, to keep them from being loose on the tool. When down, they add 1/4" to the height of the compressor legs. Just enough to work on the new air bag columns. The screw driver type handle over the compressor shaft eases installation and removal of the tool over the steering shaft. These modifications have worked well for me. I hope one or more of them find use in your kit.

Glenn Dzioba
Texas

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All-Lock VATS Decoder Winner

This Technitip is for those locksmiths that work on a number of automotive columns. The small hex head sheet metal type screws that hold the horn pad, on most GM columns, can be rather difficult to start when replacing the horn pad. The angle of the wheel and the depth of the recess under the wheel further complicate installing these screws. The solution is simply to install a tiny magnet into the nut driver you are using. (*See illustration 2.*) The screws are 7mm, but a 9/32" nut driver will also work. Cement the magnet into the nut driver shaft with silicone caulk. This makes the magnet removable, if you ever need the hollow shaft feature of the nut driver. Grease the magnet with silicone, and push it into the nut driver with the head of one of the horn pad screws. This positions the magnet exactly where you need it, in contact with the head of the screw. When the silicone dries, remove the screw. I have had this magnet in the nut driver for a number of years, and have never found a need to remove it. You'll never fumble another horn pad screw with this magnetic Tip.

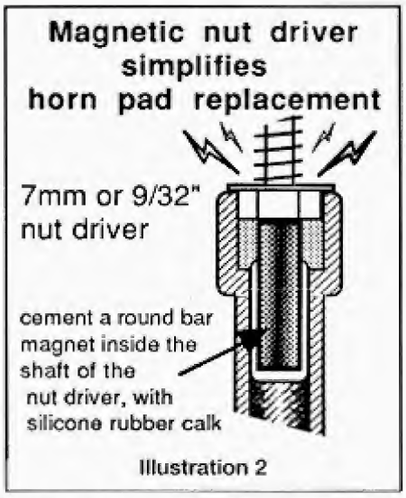

Illustration 2

Bob Diehl
Wisconsin

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HPC Pistolpick Winner

If you have to open a safe whose dial is located 3" to 4" above a key locking cylinder, this Technitip may be a fast way of getting the job done. The safe may or may not have a brand name, many were sold through MDK. Most are Korean made private label discount house fire safes. First pick the lock cylinder. This may be a four or five pin cylinder. The lock bolt will give about 1/10" when the cylinder is picked. It should be easy to apply light torque to the lock plug, while rotating the dial, to find the gate in the drive cam at this time. This will allow the bolt to move in a bit more. Insert a screw driver into the keyway and apply sufficient torque to force the lock to the unlocked position. The safe is open. The thin metal of the locking mechanism can be easily returned to its original shape after the container is opened. This method makes penetrating the small fire safe unnecessary, and allows it to be immediately returned to service, without expensive repairs.

This method will not work on safes which have the dial and lock cylinder on a horizontal line with the opening handle, like the Star and Ambassador brands. There are, however, plenty of these inexpensive safes in the field, which will yield to this type of opening technique. The best approach to any safe opening is to be totally familiar with the safe you are working on. Study the safes you are called to service, and look carefully at those in the discount houses. This Technitip will work on many of the less expensive fire security containers.

Yuri Voinov
New York

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Silca Keyblanks Winner

Need a large "wavy washer" for one of those old iron safe locks. Here's a Tip. Go to the local industrial supply house and ask for shim washers. The .003" and .005" steel or brass washers make perfect wavy washers, with a little bending. Restore a little pre-loading tension to that old wheel pack. Prevent the combination wheels from gliding past a combination number. Remove all grease and oil, with a suitable solvent, and install the wavy (tension) washer at the base of the wheel post, behind wheel number one. The amount of tension can be adjusted by bending the washer more or less.

Dennis Deback
Washington

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ESP Pickset Winner

This Technitip is one that I invented, one night when I was faced with a "keys locked in the trunk" situation on a '93 Oldsmobile 98. The electric trunk release on this model auto, and most of the big body GM autos will no longer be found in the glove box. It is found, instead, in the dash, below and to the left of the steering column. Access to the rear of the trunk release, to power it from the cigar lighter, would require removal of more trim and dash components than would be practical. The simple solution here, is to open the access panel to the fuse block. Use a multimeter to find an unswitched source for power. One that has 12VDC available, when the ignition is off. Read the fuse legend to find the fuse for the "trunk or rear deck release" circuit and use a small jumper wire or clip lead to supply power from the unswitched 12VDC to the release circuit. Depress the release button, in the dash, to open the trunk. This Technitip is actually easier than prying out the button in the glove box.

As an after thought, concerning electric trunk releases, I was called to make a key for a '93 Mitsubishi Diamante a few weeks ago. The trunk release would not operate, to open the trunk. A switch in the glove box enables and disables this trunk release. Which means that the trunk can be opened without having the ignition in the on position. Open the trunk and make a working key from the rear deck lock.

Good Luck.

Mike Schultz
Colorado

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Continued on page 14

Continued from page 12

E-Z Pull GM Wheel Puller Winner

For those locksmiths that need to carry a wide variety of replacement automotive locks on their truck, this Technitip is a must. Buy one of the new Rubbermaid flat top stack-on plastic tool boxes to carry lock stock. The deep inside well of the 24" size Roughneck tool box will easily accommodate all those Briggs & Stratton boxes, that contain the 91, 92, and 93 Chrysler ignition and door cylinders, the sector gear ignitions, VATS cylinders, and most anything else. There are two lift out trays that can be used to "organize" your poly-bag stock of ASP, Briggs & Stratton and All-Lock replacement locks. Organize, is the key word here. This tool box acts much like the tube caddy, we all remember the T.V. man used to carry. The boxes are all stored with their numbered end visible, making identification of stock easier. A paper list, kept in the lid of the box will tell you at a glance, whether or not you have a particular replacement in stock.

You might even find that boxed key stock can be more easily organized and transported in one of the smaller Roughneck boxes. The plastic tool boxes are also water proof, preventing damage to your valuable new stocked parts.

Vincent Baker
Maryland

****

Fort Lock Display Board Winner

This Technitip concerns a modification I have made to my spray lube, which makes it much safer to carry in a tool bag. Two modifications are made to a standard aerosol cap, as you see in illustration three. The top

Illustration 3

of the cap "1" is cut out, over the spray button, to allow the spray nozzle to be depressed without removing the cap, and "2," a hole is drilled from the side of the cap, to allow the snorkel tube to be left on the nozzle. By shielding the spray nozzle, the can is less likely to be accidentally discharged in your tool bag. A little silicone caulk around the snorkel tube, at "2," will fix it in the cap and prevent it from being dislodged from the nozzle and lost.

Fred Peters
Ohio

****

Here is a good Tip for the locksmith that is installing floor mounted safes, and need to drill large holes accurately in concrete. Set the mounting plate in the desired position, and mark the holes. Drill the first hole with a 1/4" concrete drill. The small diameter will drill easier and have less tendency to wander from the desired location. When the correct depth has been drilled with the 1/4" bit, switch to the desired size for the anchors being used. The pilot hole will lead the larger drill and prevent the hole from moving. The hole will drill much easier also. After drilling the first hole, position the plate in the desired location and drop a drill bit through

the plate into the drilled hole. The plate will act as a drill guide for the remaining holes. Always use the small pilot hole to start large holes in concrete. Drop a bit into the second hole, to lock the plate in position before starting the third or remaining holes. This method has worked well for me.

Glenn Kirkpatrick
Montana

****

I'm not sure whether this will be a Technitip or just a bit of locksmith trivia, but I worked out the number the combinations for the Ford 10 wafer ignition locks. The end result being that I could cut a complete set of keys which cover all the "true" cut combinations, according to the position 5 & 6 cross over cuts. These combinations were taken from the code sheets, and I believe my math is correct (*see table 4*). You will need 561

Ford 10 cut combinations

Code = # Blanks	Code = # Blanks
11 = 20	34 = 23
12 = 33	35 = 27
13 = 42	42 = 36
21 = 22	43 = 42
22 = 24	44 = 15
23 = 35	45 = 23
24 = 36	53 = 55
31 = 23	54 = 47
32 = 29	55 = 05
33 = 24	561 keys

there are1122 codes

Table 4

keys, cut both sides, for a complete set of all 1,122 codes.

Use of the try-out/actual-cut key set has allowed me to make an ignition key for most autos affected, in under 30 minutes, and without damage to the ignition cylinder. This is a worthy project, but it definitely falls into the spare time category. Good luck.

Brad MacKenzie
Ohio

****

This Technitip involves a method I have found that will, in most cases, allow me to make a proper working key for a GM sidebar lock from a try-out key.

In most cases, try-out keys use half

Combinations for try-out key "SMMMSM"

1. 133313	8. 234313
2. 133324	9. 234324
3. 133423	10. 234423
4. 134323	11. 243313
5. 134424	12. 243324
6. 233323	13. 243423
7. 233424	14. 244323
	15. 244424

Rules:

1. The sum of the cuts is always an even number.
2. The adjacent cut difference is never more than two depths.

Table 5

depths. The GM series uses three depths; a shallow depth (S) at 1-1/2, which should operate a 1 or 2 depth wafer, a medium depth (M) at 3-1/2, which is designed to operate a 3 or 4 depth wafer, and a deep depth (D) which is cut at a 5 depth, to operate a 5 depth wafer. After you have gone through the try-out keys, and found a key that will operate the lock cylinder to some degree, it is usually necessary to find a proper working key. This can be done by impression or progression. The progression sequence I describe should require the least amount of time and effort on the part of the locksmith.

After going through the try-out keys, we find one that operates the cylinder. Lets say the key that operates the cylinder has a code SMMMSM. The "S" shallow cut is between a 1 and a 2, and the "M" medium cut is between a 3 and a 4 depth. Using the knowledge that the sum of the cuts in any particular key must equal an even number, we can write a list of all the possible combinations this try-out key should operate. I find 15 possible keys for the SMMMSM try-out combination. They are listed in table five. Duplicate the tryout key over a blank, and make sure it operates the lock. Studying the table, we find that the first depth of the key can be a 1 or a 2. There is always a cut position whose lower correct cut position seems to dominate the chart. In this case it is position 1. The tryout key is cut to a 1-1/2 depth in the first position, and still operates the cylinder. Cut the first position of the duplicated try-out key to a 2 depth, and try it in the cylinder again. If it does not operate the cylinder, you will have eliminated 10

Continued on page 96

NEWSMAKERS

New Products and Industry News

Stoplock Sliding Window Lock

LMS is introducing the new Stoplock for aluminum sliding windows and doors. Unlike so many other products on the market today, Stoplock is a clean and simple designed window lock that stops both horizontal and vertical movement at the same time. It ranks higher in ease of operation, quick installation, fast exit in case of fire, complete customer satisfaction, and works well with an alarm system.

Its high retail offers a great profit to the locksmith. Installation time is 30 to 40 minutes on a complete home (10 to 15 windows on an average home). Stoplock is constructed of aluminum and acrylunitrile-butadiene-styrene with 20 percent glass fill. It won't fade or rust.

For *FREE* Information
Circle 352 on Rapid Reply

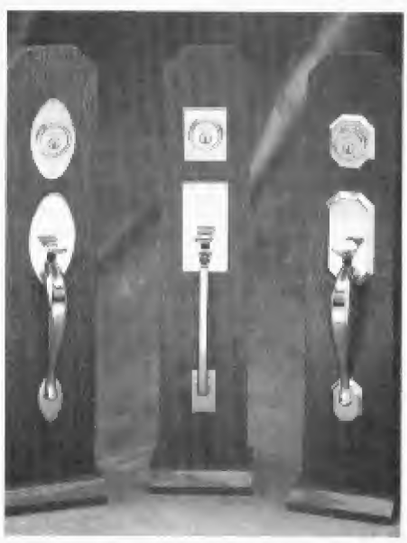
Lock And Safe Technology Info Line

The Lock and Safe Institute of Technology is offering an education and information help line. This is a 24 hour, seven days a week 900 telephone number. Now, any locksmith can get help with a code, a car opening, a safe opening, making a key for any car, V.A.T.'s, Ford sidebar locks, airbag columns, impressioning and any locksmith problem you may have can be solved over the phone. Don't lose jobs because you need some help. Call 1-900-288-INFO. The call costs $3.95 for the first minute and $1.95 for each additional minute. Be ready to answer a few questions that will identify you as a locksmith. All calls will be recorded for everyone's protection.

For *FREE* Information
Circle 353 on Rapid Reply

Master's New 10 Year Finish

Master Lock Company is introducing three entrance handlesets with a revolutionary new finish that



provides superior resistance to tarnishing, flaking and pitting - Durashine™. In addition to its full lifetime mechanical warranty, Master Lock is providing a full 10-year finish warranty-virtually eliminating costly callbacks.

The full 10-year warranty of the Durashine finish allows builders to now include door hardware under their new home warranties. Remodelers and locksmiths can also include Master door hardware under any warranties they offer.

For *FREE* Information
Circle 354 on Rapid Reply

Corbin Russwin's New Leverset

Corbin Russwin introduces a new mid-priced CL3600 Series heavy duty cylindrical lever lockset certified as ANSI Grade 1. The lockset is designed to exceed tough operational, security and finish standards as well as meet today's code requirements with full compliance of ANSI A117.1 Accessibility for the Physically Handicapped. Aesthetically pleasing in a wide range of architectural finishes, the CL3600 Series is ideal for new or retrofit commercial, institutional and multi-family applications. It is an excellent alternative to higher priced premium Grade 1 lever locksets.

For *FREE* Information
Circle 355 on Rapid Reply

Dremel Heavy-Duty Flex-Shaft

Dremel's new 7365 Heavy Duty Flex-Shaft Kit combines high speed with the finger-tip precision necessary for all locksmith jobs. The tool is the latest addition to the Dremel rotary tool line, which has been cutting, grinding, polishing and drilling in locksmith shops for 60 years.

Its solid-state, foot-operated speed adjustment from 0-20,000 RPM. The complete kit contains an advanced designed, cool-running 1/2" diameter handpiece, and accepts most other conventional handpieces.

For *FREE* Information
Circle 356 on Rapid Reply

Pepper Gas By Citizens Defense

Your Personal Safety Zone markets a new self-defense spray containing both Military CS Riot Control Agent and Cayenne Pepper in the strongest concentration available to the consumer. This product won't cause permanent injury, yet stops an assailant instantly for approximately 30 minutes, and unlike outdated tear gas and Mace-type products, works effectively against persons under the influence of drugs/alcohol. All units contain ultra-violet dye for identification, are expiration dated for two years, and come with a free replacement offer if the product is used to stop an attack.

For *FREE* Information
Circle 357 on Rapid Reply

IEI Access Control Systems

International Electronics, Inc. (IEI) introduced it's new expanded line of Door-Gard Self-Contained Access Control Systems. The new line of microprocessor based keypad, card and card/keypad readers do the work of larger CPU based systems at a surprisingly low cost.

For *FREE* Information
Circle 358 on Rapid Reply

Von Duprin Braille Touchpads

Von Duprin now offers touchpads embossed with the message "Caution Stairwell" in braille and raised letters.

The new feature was developed to serve the special needs of persons with visual disabilities in schools, stores and other commercial facilities. It is available as a standard option on Von Duprin stainless steel pushpad Series 33, 35, 98 and 99 exit devices. The message is embossed in braille, as well as in raised 1/2" high letters below. All characters are embossed to a standard 3/32"height.

For *FREE* Information
Circle 359 on Rapid Reply

New Gil-Ray Key Cutter Wheel

Gil-Ray Tools Inc., best known for their mail in sharpening service for dull key machine cutter wheels has recently designed a new wheel to replace the standard quality cutter for Curtis duplicating machines. The new GRCU-5 MC cutter is made of premium High Speed Steel and features precision ground teeth for longer service and accurate key duplicating.

This GRCU-5 MC cutter is made from M2 High Speed Steel for longer life on all key materials. This wheel will fit all machines that currently use the CU5MC cutter with a dished out back.

For *FREE* Information
Circle 360 on Rapid Reply

New Lockmasters® Tool Catalog

The new Summer 1993 Tool Catalog from Lockmasters, Inc., supplier of tools, parts and training for the safe and locksmith industry, is now available.

Products described range from the latest in computer key generating machines to a safe moving system that floats containers of a cushion of air. The new catalog is an extensive, helpful reference and buying guide for the locksmiths and safe technicians.

For *FREE* Information
Circle 361 on Rapid Reply

Continued on page 21

Continued from page 18

Jensen File Kits

A selection of eight Grobet-Swiss needle files has been packaged in kit-form by Jensen Tools. The files are fine #2 cut (medium) tools from the famous Swiss, and are highly recommended for delicate deburring and other intricate tasks.

Jensen offers the 8-Piece Needle File Kits in a choice of two (4" and 6-1/4") file lengths. Both sets are packaged in a clear vinyl storage pouch and contain one each of the following files: round, square, triangular, knife, equaling, oval, flat, and half round. All files are covered by Jensen's lifetime warranty.

For *FREE* Information
Circle 362 on Rapid Reply

M.K. Morse Lock Installation Kit

This kit includes the two most popular (2-1/8" and 1") diameters Real McCoy® hole saws (with patented, permanently attached arbor) for accurate lock installation in wood or metal doors. The bi-metal hole saw offers a variable pitch, positive rake design for smooth holes and reduced risk of door damage. The standard pack contains two kits.

For *FREE* Information
Circle 363 on Rapid Reply

"Drop'L Do" For Locking Mechanisms

Drop'l Do is a thin-film/dry-film penetrating lubricant which is specially designed for the security industry provides excellent lubrication for any kind of locking mechanism.

Thin-film/dry-film lubricants, containing sub-micron particles of solid-type lubricants, prevent rust and other corrosion and avoid attraction of dust and other abrasive matter. The penetrating attributes of this lubricant remove dirt and corroded greases and oil from the metal-bearing surfaces. These qualities can be attributed to the dry-film ingredient which makes this product unlike any other product of its kind.

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CORRECTION:

In the April 1993 issue, an article titled *Under-The-Window Tool Use* was incorrectly credited to High Tech Tool Co. The article was supplied by Pro Lok and written by Stephen C. Sharpe.

Test Article #31

GENERAL SECURITY

To be tested in December '93 issue
Details in front of issue

PUT 'POWER' IN YOUR SERVICE VEHICLE

"This is part of our security Certificate Program. In an upcoming issue, the content will be tested."

Finding power for electric tools has always been a challenge for locksmith's on the road. This is especially true on automotive service calls where the point of service is often a great distance from a good AC power source.

Conventionally this problem has been solved by using battery powered equipment and/or equipment that can operate off of the DC current supplied by the service vehicle's battery. In fact, most key cutting machines can be bought or modified to run with DC motors, and operate with satisfactory results.

Another means for operating power equipment has been to use a generator or inverter. Both of these devices convert or transform DC current to AC though both use differing technologies to do so. The advantage with these power sources is that, in most cases, standard AC powered equipment can be operated in field.

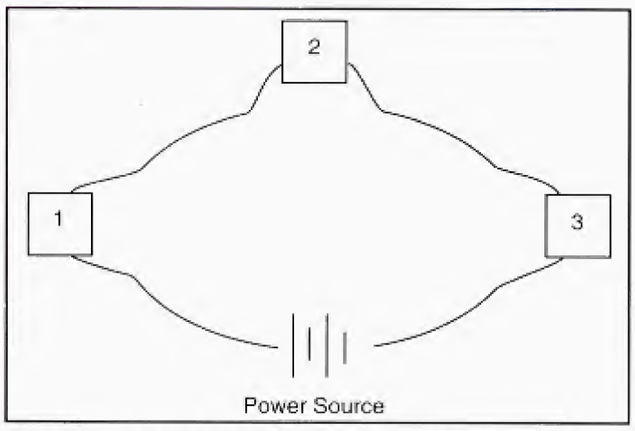
Whether using AC or DC equipment, there are three components to setting up and using power supplied from a service vehicle: The power requirements of the equipment, the capacity of the power source, and installation. If careful consideration is not taken to all three aspects, serious damage to the equipment or vehicle as well as serious personal injury may occur.

Series or Parallel

Before starting out, it must be determined exactly how the wiring loop or circuit is going to be run to the different pieces of equipment. The two methods possible are series and parallel.

In a series circuit the wiring is set up such that there is only one path for the electricity to flow. Starting from the power source the equipment in this loop would be connected end to end, eventually returning to the other side of the power source. (*See illustration 1.*)

This type of loop is real common with the string of small, blinking Christmas tree lights we untangle each year. Tracing the loop we move from one end of the plug, into one end of a light bulb, through the filament, out the other end of

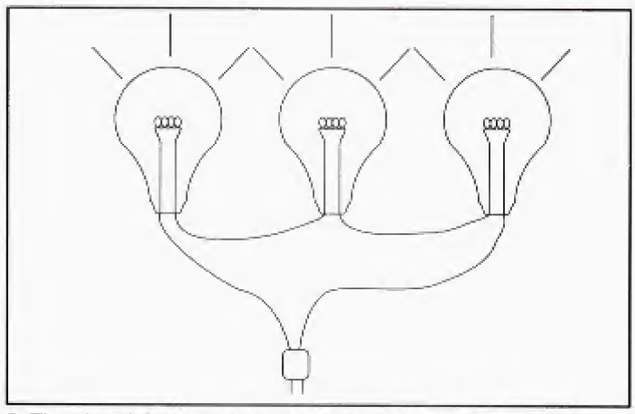


1. In a series circuit there is only one path for the electricity to follow.

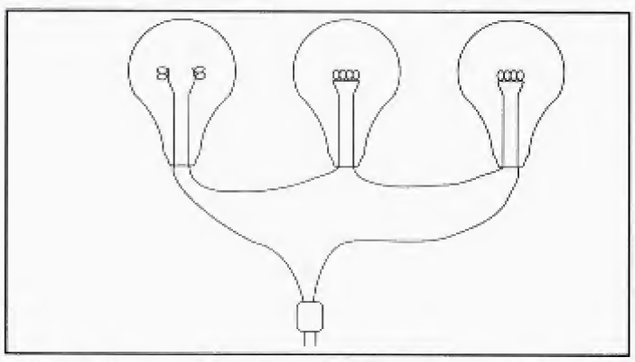
the bulb and into the end of the next bulb. This path continues in the same manner through each light bulb until it reaches the other side of the plug. (*See illustration 2.*)

Now what happens if one of these bulbs burns out? You got it. The burned out bulb creates a break in the loop or circuit, stopping the flow of electricity, causing all of the bulbs go out. (*See illustration 3.*)

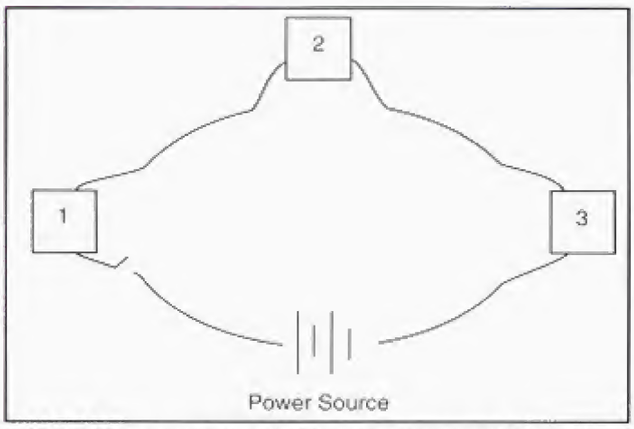
If we were to hook our equipment up in the same manner, what would happen if we turned off one of the machines or lights in the circuit? That's right. Turning the machine off causes a break in the circuit or an open circuit. With the circuit open the electricity would not flow and all of the equipment in the same loop would be turned off. (*See illustration 4.*) To operate any one machine, all of the



2. The electricity goes into one side of a bulb, through the filament, out the other side of the bulb and into the next bulb.



3. If a break occurs anywhere within a series circuit, all power stops flowing in that circuit.



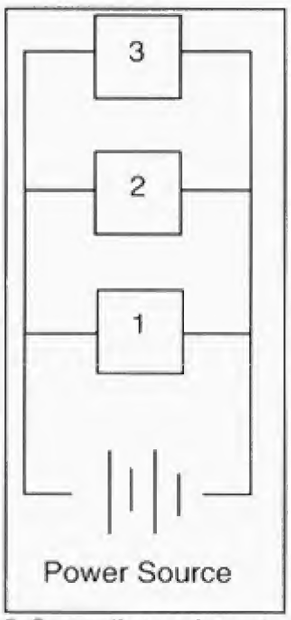
4. If machines are connected in series turning off any one of the machines turns off all the machines.

equipment in that loop would have to be on. This is just one of several reasons why using a series loop to wire a service vehicle is not used.

In a parallel circuit each piece of equipment is attached directly to the power source. Using this method, any one machine can be turned on and off without affecting the use of the others. (*See illustration 5.*) While there are exceptions, this is the preferred method for supplying power in a service vehicle.

Power Requirements of the Equipment

The first step to setting the service vehicle up for power is to decide what equipment is needed on the vehicle and the power requirements of that equipment. This includes key machines, drills, lights, anything that is going to draw power



5. Connecting equipment in parallel is the most common method for running power in a service vehicle.

from the same source. When inspecting the equipment for their power requirements, there are three specifications to concerned with: The voltage requirements, the type of current they need (AC of DC), and the amount of current or amperage needed.

Generally the voltage rating and current type are listed as one specification. For example, the specifications label on an electric motor may read 12VDC (read twelve volts DC). Another may read: 110VAC (read 110 volts AC). Many times the "V" is not present and the voltage followed by the current type is listed: i.e. 110 AC or 12 DC.

Regardless of how a piece of equipment is rated, both the voltage and current type must be the same as all other pieces of equipment used in the same circuit. If one piece of equipment is 110 AC, then all other pieces of equipment used in the same circuit must be 110 AC. If one piece of equipment is 12 DC, then all other pieces of equipment used in the same circuit must be 12 DC.

The final and very important specification to know is the

current or amp rating of each piece of equipment. This rating tells us how much electricity is needed for that piece of equipment to operate, and is critical in determining the correct power source and wire gauge.

The current is the amount of electricity that flows through or is used by a piece of equipment and is rated in amperes or amps. (See Basic Electricity, Part I, *The National Locksmith*, September 1993, page 31.) This specification is usually found on the same label or tag as the voltage and current type. The letter "A" or the word "Amp" are used interchangeably when referring to the current of a piece of equipment. For example, a motor may read 110AC/2.5 A, or it may read 110AC/2.5 amps. Simply put, in order to achieve 110 volts of AC current, 2.5 amps of electricity must flow through the motor.

Every now and then, a piece of equipment is rated by "watts". This rating is actually a combination of two other known values: the voltage and the current. Multiplying the voltage by the current (amps) gives us watts (Voltage x Amps = Watts). If the voltage and the wattage of a unit is known, the current it needs can be figured out by dividing the watt rating by the voltage rating (Watts/Voltage = Amperage).

For example, if a light we want in the system operates at 110 volts and 100 watts, finding the amp rating of this unit is equal to 100 divided by 110 or .90 amps.

Now, when several pieces of equipment are used on the same circuit, that circuit must be able to supply enough current for each piece to operate. How do we know how much we need? Simple. Just add the amp ratings of all the pieces of equipment together. This equals the minimum amp rating of the circuit. For example, let's take three pieces of equipment rated at 12 DC. Piece #1 has an amp rating of .75, piece #2 a rating of 1.75, and piece #3 a rating of 2.5. Adding the amp ratings together gives us a total rating of 5 amps. This means that the equipment, when operated at the same time, draws a minimum of 5 amps of current.

In determining the power demands of the equipment then, there are three rules:

1. The voltage requirement for all pieces of equipment must be the same.
2. The current type (AC or DC) for all pieces of equipment must be the same.
3. The total amount of power or current needed by the equipment is found by adding the current or amp ratings of all the equipment together.

Capacity of the Power Source

After having determined the power needs of the equipment, it is now practicable to determine the type of power supply that is needed.

This is solved by making an alteration to the three rules just listed in the previous section.

Following rule #1, the power source must supply the same voltage that the equipment requires. If your equipment is rated at 12 volts, the source must supply 12 volts. If the equipment is rated at 110 volts, the source must supply 110 volts.

Following rule #2, the power source must supply the same type of current that the equipment requires. If your equipment is rated DC, the source must supply DC. If the equipment is rated at AC, the source must supply AC.

The two most typical power requirements for equipment drawing electricity from the service vehicle is 12 DC or 110 AC. The 12 DC equipment generally is made for and can be run from the vehicle's battery or a secondary battery. The

110 AC equipment, however, usually requires a generator or inverter to convert the 12 DC supplied by the battery into 110 AC. In either case, their is a maximum amount of current either source can safely supply.

A full article could be devoted to using the vehicle's battery or a secondary battery to power equipment and tools and is beyond the scope of this article. In general, however, the capacity for supplying power to equipment by a battery is limited to the size of the battery. The danger arises in using the improper wire gauge and fusing for the circuit.

The capacity for a generator or inverter to supply power, on the other hand, is dependent on the ability of the generator or inverter to convert DC to AC. This ability is rated in "watts". The higher the watt value, the higher the rate of conversion from DC to AC. Most generators/inverters used in the locksmith field range from 700 to 1600 watts.

Because the ability of a generator/inverter is limited by its rate of conversion, danger arises when the power requirements of the equipment exceed the ability of the unit to convert. When equipment demands more power than the unit can efficiently convert, an unprotected generator/inverter will overheat, at minimum, and possibly burn. Therefore, it is critical that the power requirements of the equipment be within the converting capability of the generator/inverter.

How is this determined? Quite simply. Remember, the watt rating or value is actually a combination of two other known values: the voltage and the current. Multiplying the voltage by the current (amps) gives us watts (Voltage x Amps = Watts). For example, above we had three pieces of equipment rated at 110 AC that together used 5 amps of power. Multiplying voltage and current yields 110 x 5 equals 550 watts. Therefore, the generator/inverter must be rated for at least 550 watts.

For safety's sake it is best to have a generator/inverter that exceeds the equipment's power requirements by 10 or 15 percent. For the 550 watt requirement we just found, this means the generator/inverter should have a rating of roughly 600 watts, give or take a few watts.

Installation

Wiring and fusing are the two important considerations when setting up for powering equipment via the service vehicle. They are the connection and protection for the equipment and the power source. Using improper wire gauge, making improper connections, and inadequate fusing can lead to equipment/power source failure or damage, and possibly personal injury.

When setting the vehicle up it is not recommended that any connections be made to the vehicles fuse panel or existing wire harnesses With the introduction of computers into automotive engineering, power spikes and peaks caused by starting and stopping of equipment may cause damage to them and other components of the vehicle's existing circuitry. Instead, all connections should be made right to the power source. When installing a generator/inverter always refer to the manufacturer's instructions.

The wire gauge is important. If the wire is to small, it will heat up, and in some cases burn, when a load is applied. This is dangerous and uncalled for. Having too large a wire may be unnecessary but is good. Because some of the wiring may enter the engine compartment, it is recommended that jacketed, oil, solvent and heat resistant cable be used.

The wire gauge for a circuit is dependent on the total amount of current or amps that the equipment could take.

For a DC circuit, 20 amps or less can use 14 gauge (14 AWG) wiring. For an AC circuit, 15 amps or less can use 14 gauge (14 AWG) wire, and 20 amps or less should use 12 gauge (12 AWG) or more. (Other factors, such as the length of the wire, affect the correct gauge wire to use. The above specifications, however, will cover most conditions for use in a service vehicle. NOTE: Refer to manufacturer specifications for proper wire gauge going from the battery to a generator or inverter.)

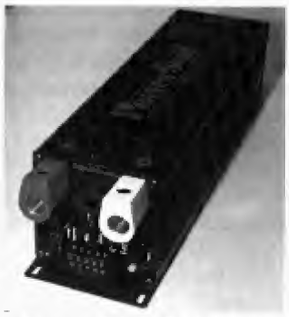
Like the wiring, fusing is also very important, especially in DC applications that run directly from the battery. The fuse is designed to protect both the wiring and equipment. The idea behind using a fuse is simple. The adage goes, "a chain is only as strong as its weakest link." By making the fuse the weakest point in the system, if the current exceeds either the wire or the equipment ratings the fuse will be destroyed before the wiring or equipment.

How is the right size fuse determined? As a rule, the amp rating of the fuse must never exceed the amp rating of the wire or cable, yet above the power requirements for the equipment. A fuse rating that exceeds the wire rating leaves room for the wire becoming damaged by an overload. In such a case, the wire would start to burn before the fuse had a chance to burn out. On the other hand, if the fuse rating is below the total amp rating of the equipment then it will be burning out unnecessarily.

Let's set up a system using the three 110 AC pieces of equipment spoken of earlier. As the total current needed by these pieces is 5 amps, we have already determined that the power source (generator or inverter) must exceed approximately 600 watts. Because the total current requirement of the equipment is less than 15 amps, 14 AWG wire can be used.

With this gauge wire having a rating of approximately 15 amps, the fuse we use must be 15 amps or less. And, because the equipment draws 5 amps, the fuse must have a higher rating than 5 amps. Generally, the fuse amp rating should exceed the minimum equipment requirement by 25 percent and in some cases 100 percent. We will use a 7 amp fuse in our system.

Bench Grinder
Voltage: 115 AC
Current: 3 A



Power Star UPS 1300
Watts: 1300

HPC 1200
Voltage: 115AC
Current: 1.75 A

If we were to set up a truck to power these four machines, we first make sure they all have the same voltage and current type ratings. In this case, all the machines operate on or about 115 AC.

Next, we find the total current needed by the system. To do this, we add all of the current ratings together. Where the current or power (watts) rating is not on the label, it is simply a matter of calling the manufacturer for the specifications.

With these four machines we have: 3.0A+2.5A+1.75A+2.1A=9.35 total amps.

To find out how large a power source we need, let's multiply the voltage (115 AC) by the total current (9.35 amps) and see what the minimum watt rating of the power source must be: 115 x 9.35 = 1075.25 watts. To create a safety margin we add 10 to 15 percent to that rating, leaving us with a power source that can deliver roughly 1200 watts of power. The PowerStar UPS1300 inverter above, will allows us 1300 watts of power at 115 volts.

With under 15 amps of AC current needed for the total circuit, we will use 14 AWG wiring to make the connections to the inverter To stay safely below the 15 amps of the wire and above the 9.35 amps required for the system, we will fuse the circuit with a 13 amp fuse.

Ilco Duplicator
Voltage: 115 AC
Current: 2.5 A

Silca Club
Voltage: 115 AC
Current: 2.1 A

Test Article #32

AUTOMOTIVE SECURITY

To be tested in December '93 issue
Details in front of issue

1994 GM "N" BODY IGNITION

"This is part of our security Certificate Program. In an upcoming issue, the content will be tested."

The major lock changes coming to General Motors cars in 1994 are for the "N" style body, better known as the Oldsmobile Achieva, Buick Skylark and Pontiac Grand Am.

Through 1993 these vehicles are using an ignition introduced by Alpha Technologies and used on the 1991 GM "J" body Chevrolet Cavalier. This ignition is non serviceable, and incorporates six staggered wafers and a sidebar.

The new ignition is by Briggs & Stratton, is serviceable and uses nine non staggered wafers and a sidebar ; the wafers and sidebar are very reminiscent of the old standard. While the key actually has 10 cuts, this ignition only uses cuts one through nine.

The key is a double sided convenience key utilizing 10 cuts and four depths and the new 1994 GM code series AA00 - 7N45 with over 100,000 active bittings.

For 1994 the "N" body lock change affects the ignition only. In 1995 this may expand to include the door locks (possibly using the unused 10 cut). Also, in 1995 this lock system is to be extended to the "J" body Cavalier. The new 1995 Oldsmobile "G" body Aurora is scheduled to include this same ignition with the addition of VATS and door locks that will use a double sided convenience key.

Following is the tear down of a prototype column, showing how to remove an ignition with and without a key. Ignition cylinder pinning and servicing follow.

There are two style ignitions for the GM locks (all locks and components are available from Briggs & Stratton distributors). One is for manual vehicles which include the push button on the face of the lock (B&S part #702556 coded, part #702554 uncoded).

The second one is for automatic vehicles and does not have a button on the face of the lock (B&S part #702555 coded, part # 702553 uncoded).

Ignition Removal

1. Gently remove the trim ring from around the face of the lock. Two long, ribbed legs of this piece straddle the lock and affix it to the lock body.

Be very gentle removing this piece. (*See photographs 1, 2, 3 and 4.*)

2. Remove the column shroud. The shroud is the two-piece clam-shell variety, held together with two philips head screws and three T-20 torx head screws. Remove these screws, separate the shroud and remove them from the column. (*See photographs 5, 6, 7 and 8.*)

3. When keys are available. Turn the key to the "Run" position and depress the lock retaining pin. (*See photographs 9 and 10.*) The retainer is located on the backside of the column, approximately 1-1/4" from the front of the mouth of the cylinder sleeve.

Many times, however, the locksmith does not have a key available. Use the following information and procedure to remove an ignition when keys cannot be furnished.

Photograph 11 shows the top of the lock cylinder. Here the lock retaining pin and its spring can be seen. The retaining pin spring serves two purposes: Its primary purpose is to push the retaining pin up into the cylinder sleeve once the lock is seated properly. Its secondary purpose is to hold the retaining pin in place. When the spring is removed the pin falls away and free from the cylinder.

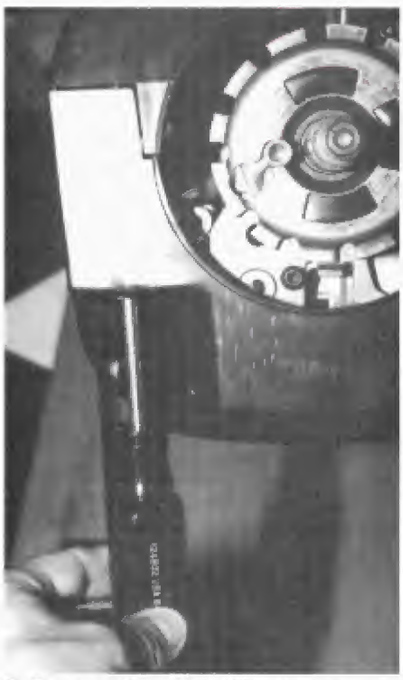
It is this spring that is the focus of the removal. To remove the spring, the simple tool (B&S #595663) of

1. The bezel or trim ring around the cylinder must be removed first.

2. Gently pry from both the front and back to remove the ring.

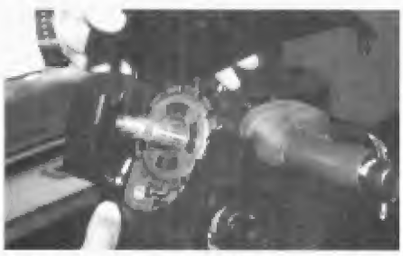
3. The ring removed.

4. The two legs on the ring are ribbed and mesh with the ribbed pattern on the ignition housing. This characteristic makes this piece a little difficult to remove.

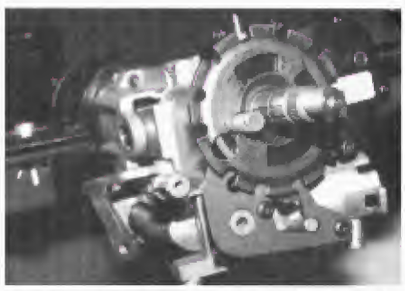


5. Remove the two philips head screws that hold the column shroud halves together...

6. ...then remove the three torx screws.

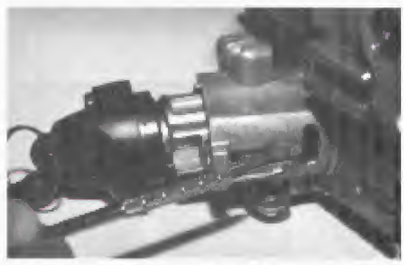


7. Separate the shroud pieces and remove from column.

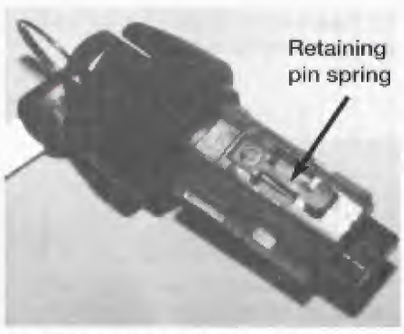


8. The column assembly with shroud removed.

9. After inserting and turning a working key to the "Run" position, depress the cylinder retaining pin...



10. ...and remove the cylinder.



11. The retaining pin spring serves two purposes, and is found at the top of the lock.

12. Straddling the retaining pin spring with this tool allows the spring to be removed.

photograph 12 can be used. To use the tool, the slot in the tip is placed over and straddles the retaining pin spring. (*See photograph 13.*) The tool is then twisted, pulling the spring away from the retaining pin. The retaining pin is then free to fall out of the sleeve, freeing the lock.

1. When keys are not available. Go to the backside of the ignition sleeve assembly, just behind the lock. Here a small ribbed rectangular area can be found. Moving to the top corner of the rectangle, directly in line with the center of the retaining pin, drill a 1/4" hole. (*See photograph 14.*)

2. Insert the spring removal tool, twist and remove the retaining pin spring. At this time the retaining pin can be pulled out of the sleeve assembly and the lock removed. (*See photograph 15.*)

3. Insert a new lock.

Ignition Keying

While a keying kit is not currently available the individual components are, and can be added to existing GM kits. While the tumblers, springs and tumbler retainer are very similar in appearance to the existing GM system, they are quite different.

There are only four tumbler depths and each has a false sidebar notch in them to prevent picking. All of the tumblers thus seen have had the tumbler number stamped on the side of them. (*See photograph 16.*) These tumblers are not interchangeable with the older GM version.

Also different is the length of the tumbler retainer. This version is much longer than the older and they are not interchangeable.

Be careful not to mix the new and older version components together.

The B&S part numbers are as follows: #1 tumbler - #322081; #2 tumbler - #322082; #3 tumbler - #322083; #4 tumbler - #322084; tumbler springs - #46935; tumbler retainer - #322117; cylinder retainer spring - #346934; and, cylinder retainer - #311946.

To pin a lock, take an uncoded lock (*see photograph 17*) insert the correct tumblers into the plug. Remember that the sidebar notches on the tumbler must face the sidebar side of the plug.

Place the springs on top of the tumblers, followed by the tumbler retainer. Press and peen the retainer into place. (*See photograph 18.*)

Insert cylinder retainer spring and cylinder retainer. (*See photograph 19.*)

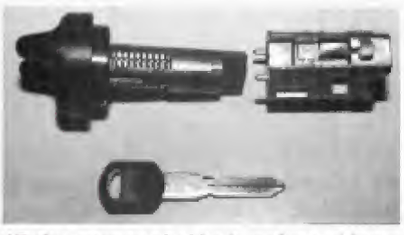
Insert the working key into the plug.

13. The tool straddling the retaining pin spring.

14. Drilling a 1/4" hole in the back of the housing allows access to the retaining pin screw.

15. Inserting the tool to remove the spring and retaining pin.

16. The new tumblers are identical in design but different in specifications. Notice the false sidebar notches included to prevent picking the cylinder.



17. A new uncoded lock and uncut key.

18. Place the tumblers, springs and tumbler cap into the plug.

19. Insert the cylinder retaining spring and cylinder retainer.

20. After aligning the plug and cylinder insert the plug.

21. Turn the plug clockwise and release.

Align the tab found at the end of the plug with the channel or broaching that follows the entire inside length of the cylinder. (*See photograph 20.*) Insert the plug into the cylinder until the detent pins at the front of the cylinder are completely depressed.

Turn the plug clockwise and release. (*See photograph 21.*) It can now be turned to the right position for depressing the retaining pin and installing into a column.

Test Article #33

ELECTRONIC SECURITY

To be tested in December '93 issue
Details in front of issue

BASIC ELECTRICITY III

"This is part of our security Certificate Program. In an upcoming issue, the content will be tested."

Last month Kirchoff's Voltage Law (hereinafter referred to as KVL) was introduced and used to solve a few simple problems. The problems, of course reflected only ideal conditions. This article shows how the KVL can be manipulated to show us what can happen under less than ideal conditions.

In its simplest terms KVL states that all voltage rises when added together MUST EQUAL all voltage drops when added together. Our samples showed how this is achieved with the use of a power source to provide a voltage rise and electric strikes to serve as the equalizing voltage drops. But what happens if the power source and the loads are NOT EQUAL?

Before approaching this, we must look at the different ways we can change or manipulate KVL to help us find the parts of the answers we are looking for. For example, by making simple changes to KVL we can find the resistance, the current and the power absorbed (wattage) by the total circuit or individual loads within the circuit. These variations can help us better understand the interrelationship between the power source and the loads. So, let's start off with two equations we already know:

Recounting the KVL equation we know: $E_S=E_1+E_2+E_3+E_N$.

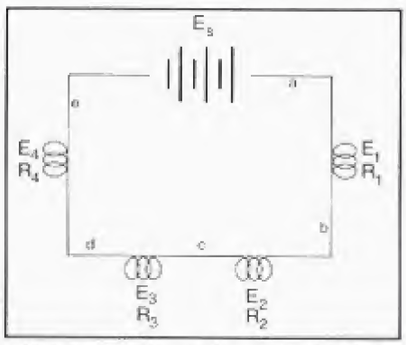
Using Ohm's Law we also know that E=IR.

Because E (voltage) = I (current in amps) x R (resistance in ohms) we can replace the E in the KVL equation with IR from Ohm's Law,; leaving us with the following equation: $IR_t=IR_1+IR_2+IR_3+IR_N$.

Thus far we have been working with series circuits only. A series circuit allows only one path for the current to travel. Starting from the power source, the current travels around a single loop or circuit to the first load. After passing through the first load the current continues through the loop to the next load. This goes on until the loop returns to the power source. Because there is only one path for the current to follow, if the path is broken anywhere in the

circuit, the current ceases to flow anywhere in the circuit.

Now, because there is only one path for the current to follow, the amount of current through the circuit will be the same at all points within the system. For example, in illustration one, if we were to measure the current at point "a," it would be same as the current measured at any one of the points "b," "c," "d" and "e."



1.In a series circuit the current is the same at any point within the circuit.

Because the current is the same at all points in a series circuit, we can further manipulate KVL. With the current (I) being the common factor (or same at all parts in the equation) we can divide it out of the last equation we made. Therefore,

$IR_t=IR_1+IR_2+IR_3+IR_N$ now becomes $R_t=R_1+R_2+R_3+R_N$.

What this equation tells us is that by adding the resistance (in ohms) of each load in a series circuit, the sum will equal the resistance for the total circuit. Look at illustration two for example. If we want to find the resistance of the total circuit we simply add R_1 plus R_2 plus R_3, or: $1.5\Omega + 1.5\Omega + 4\Omega = 7\Omega$. Therefore the resistance for the total circuit, R_t, is 7 ohms.

Now, let's stop and briefly review the tools or equations we now have to work with. First, we have KVL,

$E_s=E_1+E_2+E_3+E_N$,

telling us that the voltages across each of the loads added together MUST EQUAL the voltage of the power source.

Next, we have Ohm's Law,

$E=IR$,

showing us the relationship between voltage (E), current in amps (I) and resistance in ohms (R).

We also know that we can change Ohm's Law to solve for different parts of the equation,

$I=E/R$ to solve for current

and $R=E/I$ to solve for resistance.

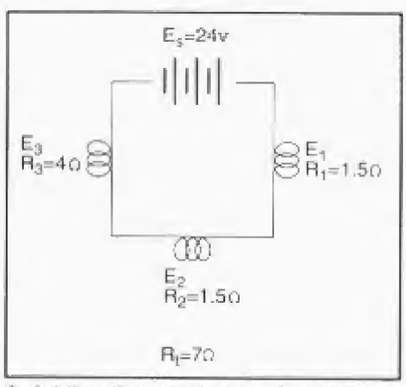
Finally, using Ohm's Law, we can change KVL, giving us yet another equation,

$R_t=R_1+R_2+R_3+R_N$.

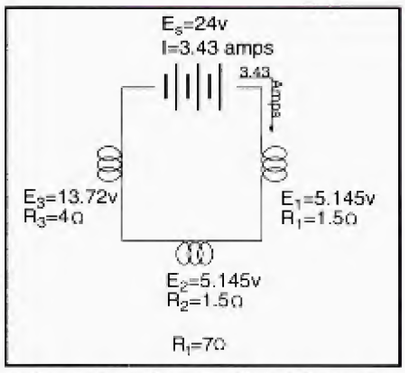
But the fun (or confusion) hasn't stopped yet. We can now use these equations to solve for the unknown measurements and specifications of a circuit.

Let's say that the strikes of illustration two have the following optimum operating ratings:

Voltage	12	6	3
Resistance in Ohms	4	1.5	.56
Amps	3.0	4.5	5.37



2. Adding the resistance of each load in the circuit yields the resistance for the total circuit.



3. Once the total circuit resistance is found, the current is derived and the correct voltage at each load can be determined.

In our circuit we have a 24 volt power source and three electric strikes in series. Initially choosing the strikes following KVL, we include a strike rated at 12 volts and two strikes rated at 6 volts. By putting them in series, however, the true voltage potential of each load or strike is dependent upon how much current each one receives.

For example, in order to reach a 12 volt potential from the 12 volt strike, we need to have a current of 3.0 amps. In order to reach a 6 volt potential from the 6 volt strike, we need to have a current of 4.5 amps. If the actual current to each load is higher than the optimum rating, then we know (by using ohms law, E=IR) that the voltage will be higher. Likewise, if the current is lower than the optimum rating, the voltage also will be lower.

The only two factors that cannot change are the resistance of the coils or solenoids and the source voltage of 24 volts. In order to know the true potential or voltage for each load, therefore, we need to first find the true current for the circuit.

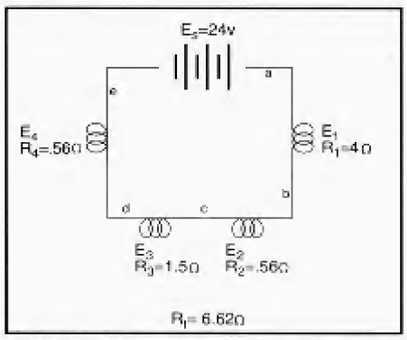
Remembering that the current is the same at all points in a series circuit, let's start by solving for the current of a circuit with some known values.

In illustration two we solved for the total circuit resistance. Because we also know the source voltage (E_s), we can now solve for the current of the circuit in this illustration.

Using Ohm's Law to solve for current (I=E/R) we will divide the source voltage by the total resistance (E_s/R_t=I) to give us the current for the circuit.

24 volts/7Ω=3.43 amps.

Knowing that we only have 3.43 amps of current flowing through our



4. When solving for the actual circuit current and the voltage of each load in a series circuit, first determine the total circuit resistance, R_t, by adding the resistance of all the loads together...

circuit, we can now determine the true voltage potential for each load by using Ohm's law to solve for voltage (E=IR).

For E_1 we have E_1 = 1.5Ω X 3.43 amps = 5.145 volts.

For E_2 we have E_2 = 1.5Ω X 3.43 amps = 5.145 volts.

For E_3 we have E_3 = 4Ω X 3.43 amps = 13.72 volts.

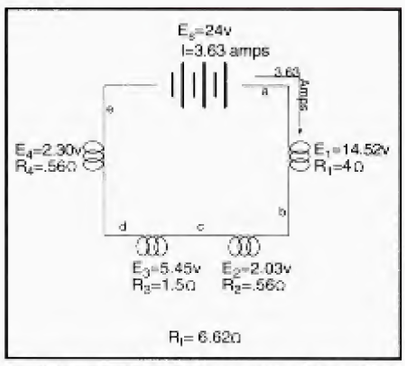
Adding the voltages of all the strikes together, 5.145 + 5.145 + 13.72 we have 24.010 volts, exactly what KVL predicts. (*See illustration 3.*)

Now, let's look at what happens when we alter the circuit. If we have a 24 volt power source and four loads; one 4 ohm, one 1.5 ohm, and two .56 ohm strikes. According to KVL the voltage source is distributed proportionally to the varying loads in the circuit.

Having the resistance value of each load, we can use one of our KVL equations to solve for the circuit current: First, using the $R_t=R_1+R_2+R_3+R_N$ equation, we solve for the resistance of the whole circuit.

4Ω + .56Ω + 1.5 + .56Ω = 6.62Ω. (*See illustration 4.*)

Then, using Ohm's Law we can solve for the circuit current.



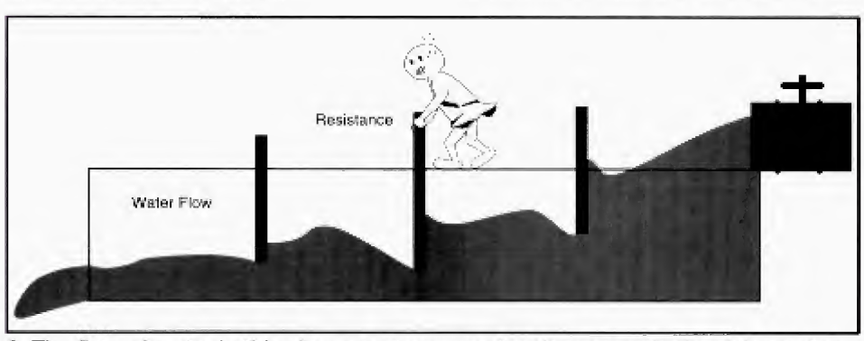
5....Then using Ohm's Law, determine the current for the circuit and then the voltage of each load in the circuit.

E_S/R_t = I, or, 24 volts/6.62Ω = 3.63 amps.

Finished, we find that we have a system comprised of a 24 volt power source delivering 3.63 amps of current to one 4 ohm strike, one 1.5 ohm strike, and two .56 ohm strikes. After solving for the circuit current we are able to determine the true voltage at each of the loads. (*See illustration 5.*)

Now, let's remove the 4 ohm strike, what happens? Removing the resistance of this load from the circuit means that 24 volts is now applied to the remaining strikes. Or, 24 volts is now being applied to 2.62 ohms worth of loads. In its simplest language, because one strike was removed, the extra power (voltage and amps) is now being applied to the remaining strikes. Exactly how much more power is being applied can be determined.

We know that voltage is basically electrical pressure and that current is the amount of electrons that flow in a given amount of time (like gallons per hour). The loads (a source of resistance) restricts the current flow. To better visualize what happens when the load is changed by removing restrictions or loads, refer to the sleuce in illustration six. In this example we increase the flow of the



6. The flow of water in this sleuce is determined by the amount of resistance the water flow faces. The more resistance, the smaller the flow, the lower the resistance the higher the flow.

water through the sleuce by removing restrictions. As restrictions are decreased, the amount of water that flows through the sleuce is proportionally increased.

When we take the 4 ohm strike out of our circuit, we are decreasing the amount of resistance and increasing the current. We can figure out exactly how much current is flowing through our altered system using Ohm's Law:

$I=E_s/R_t$.

Or, 24 volts/2.62 Ω = 9.16 amps. (*See illustration 7.*)

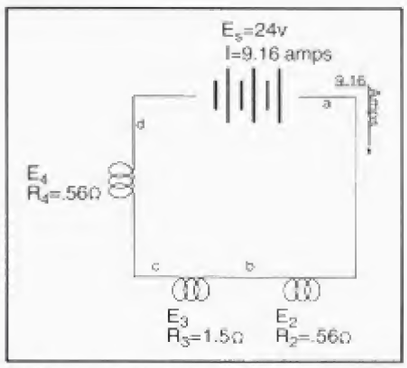
In this case the circuit's current has been increased considerably. When the altered circuit current exceeds the optimum current rating of any of the strikes, those strikes will heat and may burn.

What happens if we put back the 4 ohm strike and remove a .56 ohm strike?

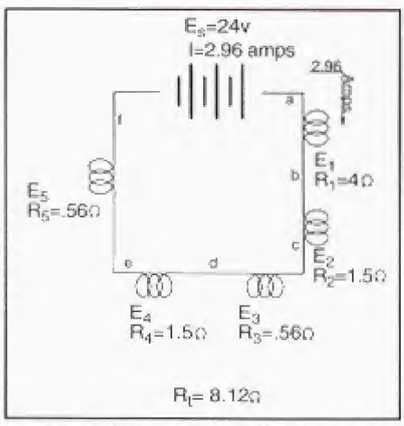
Simple enough. We now have an applied 24 volts going across a 6.06 ohm circuit. The reduced resistance causes a proportional increase in current:

Using $I=E_s/R_t$ again, we have 24 volts/6.06 Ω = 3.96 amps.

As seen, this is only a slight increase in current and may have little affect on the operation of the equipment. As always, however, check the equipment



7. Removing loads from a circuit reduces the amount of resistance in the circuit, creating a proportional increase in the circuit current and increased voltage at each lead.



8. Adding loads to a circuit increases the amount of resistance in the circuit, creating a proportional reduction in circuit current and reduced voltage at each load.

ratings before operating.

In the last two examples we changed the circuit by removing a strike. What happens if we want to add one? Unlike the previous examples, we are now adding resistance to the circuit instead of taking it away. By adding resistance we reduce the current flow of the circuit, and, consequentially, lowering the voltage potential of each load.

If we add a 1.5 ohm strike to our previous 24 volt circuit in illustration 5, we now have a voltage source applying 24 volts to a cumulative load of 8.12 ohms. Using the same equation, we can determine the new current for the altered system.

Again, $I=E_s/R_t$, or, 24 volts/8.12 Ω = 2.96 amps. (*See illustration 8.*)

In this instance, the current has been reduced by .67 amps. In some cases a current drop this size may not allow the equipment to operate properly, if at all.

by Dave Powell

KEY PRODUCTION

"Key production is not as easy as it seems, especially for those companies that produce a full line offering and quality."

Materials

Most keys produced in the United States are made of brass or nickel-silver material which is purchased from various suppliers. The proper brass material to use is designated as #353 brass and the proper Nickel-silver to use carries the designation of #782 nickel-silver. Most of the companies that produce keys will use these materials and purchase them from various production mills. The material is ordered months in advance of production to allow the mills time to produce the material ordered. Size specifications on material are variable by key style which requires many various strip sizes that a manufacturer must inventory and plan in advance for orders. The material is delivered in coiled strips and produced to the specifications requested by the company.

Key Specifications & Tooling

The production process starts with the proper specifications to which the key must be produced. Ideally, the key company will try to obtain the original specifications to the required key from the original key manufacturer, including the tolerances at which the key must be produced. Unfortunately, many of the original manufacturers will not provide this information. In this case, the key company should obtain an original lock and keys. Their engineering department must then determine the required specifications to allow the replacement keys to work properly within the lock and not damage the lock or the security design of the lock. Drawings are then made to produce the required tooling for key production. Tooling consists of stamping tools, various feeding shuttles and coining dies. These tools are then produced either by in house tooling departments or by outside sources to the specifications required. The tooling process is time consuming and expensive. As the tools are used during production they require periodic maintenance to assure proper performance and specifications.

Stamping Process

The first operation in key production is the stamping process. This process uses a stamping press and the appropriate stamping tool to stamp out the basic shape of the key from the brass or nickel-silver strip. Some companies do not coin the key bow but incise the key instead. If the key head is incised, it is usually done as a second step after the stamping process. Incised keys can usually be identified easily as the design or lettering is stamped into the key while coining creates a raised design or lettering in the key. Generally, professional locksmiths desire properly coined keys because they have a better quality look. For the manufacturer, incising saves time and money as he avoids coining, allowing him to produce the key less expensively.

Backmilling

Many key styles should be backmilled to properly conform to original manufacturers specifications and allow the key to properly work the lock. Backmilling is the process of rounding the bottom of the shank of the key opposite the top of the key that is bitted. This process allows the key to properly seat in the lock and aids in the proper dimensions for creating the shear line so the key turns properly. The most common key that should be backmilled is the Schlage 100C. Some companies do not properly backmill their keys, again eliminating an operation, thereby saving on production costs. Instead of backmilling, they create a false rounding of the bottom shank of the key by engineering the milling cutters to knock off the edges of the shank. They will also usually change the proper milling profile to accommodate the lesser rounded bottom so the key will work in the lock. This process is obviously not desirable, however, again the manufacturer is saving money on production but not producing a key that is to the proper original specification.

Continued on page 40

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Milling

The milling of the key is another process that can be very difficult, if the key is produced to original specifications. Milling cutters should be designed to be as close as possible to original specifications to assure proper duplication. During the manufacturing process, keys in production must be checked often on a comparator to be sure they conform to the proper millings, if the manufacturer is conforming to original specifications. Again, many manufacturers engineer their milling cutters so that they do not conform to original specifications. If the milling cutters are engineered to different specifications, the manufacturer can produce keys faster and easier with less chance of error, thereby saving on production costs. This however makes the key fit loosely in the lock and can cause excessive wear. In addition the keys may not duplicate and work the lock properly.

Proper millings will also be smooth with a minimum of pronounced "waves" in the milling. Cutter design and machine operating speed are important in producing proper milling. Some manufacturers run their milling machines very fast to produce more economically. This creates the "waves" in the mills and is not desirable for the working mechanisms of locks.

To produce quality keys, the manufacturer must conform to original specifications, design his cutters properly, run his equipment at the proper speeds and constantly inspect the production during this process.

Coining

Quality keys are coined rather than incised as mentioned before. The coining process requires a separate set of coining dies for every different key that is produced as well as coining presses to produce the coining on the key bow. Deep struck quality coining finishes off the key properly giving a the desirable look to the consumer. Many companies include multiple references on the bow of the key to make them easier to identify between competitors that have different numbering systems.

Washing and Burnishing:

The final stage before plating is washing and burnishing the keys. Various methods are used, but the basics are the same. The keys are burnished to remove sharp edges, polish the key, remove oil and dirt that

has accumulated during production and prepare the keys for plating or lacquering. The better the key is burnished, the better the key will look after plating or lacquering so it is important to have proper equipment for this process.

Nickel Plating and Lacquering

The final step to finish key production is either nickel plating or lacquering. Both brass and nickel-silver will tarnish in time if the key is not covered to keep outside elements away from the material. If the key is nickel plated it is not necessary to lacquer it as well. Studies have shown that consumers clearly prefer nickel plated keys over brass keys as they like the shiny silver finish and view the key as higher quality. Nickel-silver keys are also perceived as higher quality as their finish is a version of shiny silver also.

Lacquering is the most common method used to protect both brass and nickel-silver keys although some companies use other methods.

The nickel plating process requires heavy investments in equipment and a number of chemicals which can be very dangerous and harmful to the environment. Companies that do their own nickel plating must work closely with the Environmental Protection Agency so as to not create pollution. This process adds considerably to the cost, but is necessary to protect our future.

Packaging

The final step after all of the actual production is packaging. Many keys are packaged in plastic bags which requires special equipment to package. These plastic bags are then put in individual boxes for box quantity and those boxes are then packed into master cartons of usually 1000 pieces.

Those keys that are not packaged in plastic bags are boxed in various quantity individual boxes usually with specially designed mechanical equipment. The individual boxes are then put into master cartons usually of 1000 pieces.

Production and Pricing

A key company must consider carefully the popularity of the key and the materials being used on the key being produced. Nickel-silver, for example, is much more costly than brass and must be considered in pricing. Keys that are not popular styles are produced in much smaller quantities which means the cost to produce them is much higher. This is because the set up costs for each key are approximately the same and these costs are spread among the quantity produced. When a shorter run of keys is made the production cost per key is much higher. Further, it is likely that the inventory turns on the less popular keys is slower and again more costly to the manufacturer. The companies that produce short lines of keys generally only concentrate on the more popular items eliminating these problems and overall reducing their costs of doing business.

Summary

As you can see, key production is not as easy as it seems, especially for those companies that produce a full line offering and quality. Quality with keys is most important to the locksmith industry because the locksmith is the professional that the consumer should trust to provide only the best product for the required application. Buying price does not always mean quality and you could inadvertently be causing damage to the consumers lock by using inferior product. Quality and service are important factors from your distributor and from the manufacturers.

PRODUCT REVIEW

KEYS AND KEY MACHINES

An offering
of the latest and best
on the heart
of the locksmith's trade
Key Machines!

Taurus Key Machine

Now available from Craftmaster Hardware is the Taurus Key Machine - a machine that has been called the most accurate semi-automatic key machine available today.

Features of the Taurus include: Four-sided vises which hold practically any key-particularly hard-to-cut double-sided keys; an adjustable key guide and is complete with a light and brush attachment. The Taurus cuts 98 percent of all pin and wafer keys.

For a limited time, Craftmaster Hardware is now offering 1,000 free key blanks with the purchase of a Taurus Key Machine.

For *FREE* Information
Circle 364 on Rapid Reply

DiMark Offers Borkey Wasta-Tex

Available through DiMark International, the Borkey Wasta-Tex coding system uses space keys and a quick-select indexed depth dial for unequaled speed and precision.

Unlike depth keys, only

one space key is required for each series, so coding the key requires less than five seconds. Since there are no gauges and all indexes are metal against metal, each key is highly accurate. In fact, most locksmiths who use the Wasta-Tex system code all change keys in new master key systems. Coding is as quick as duplicating and guarantees the highest possible accuracy.

The Wasta-Tex is pricey compared to other code machines, and DiMark reports that most buyers are heavily into commercial system setups.

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ESP's Model 3000 Lever Key Machine

ESP's Model 3000 Key Machine operates with a lever that allows keys to be cut in one smooth motion with one hand and is designed for long-lasting dependable accuracy for the lifetime of the machine.

Features include black-oxide hardened steel reversible jaws for trouble-free vise action, and wide-carriage design with increased spacing between the cutter and stylus to cut large-head and longer style keys.

Other standard features include a 34MC high-speed steel cutter, bronze gauge fork and durable nylon brush. The Model 3000-12V features a 12-volt motor.

For *FREE* Information
Circle 366 on Rapid Reply

Framon Duplicator

Framon's new semi-automatic duplicator, the EXPRESS, is built with all of the usual precision Framon owners have come to expect. Sealed ball bearings are used throughout the machine to provide long life and quiet operation. Depth adjustments can be made quickly & easily in increments of .001". Rod wipers are built into the machine which clean the carriage rod as keys are being cut. Built-in tip stops for Ford and Best keys, as well as reversible vises for cutting small Master padlock and Hurd keys, are included with the EXPRESS. The EXPRESS is backed by a one year warranty.

For *FREE* Information
Circle 367 on Rapid Reply

Gil-Ray's.Cutter Sharpening Service

Gil-Ray Tools Inc. offers a main in sharpening service for dull key machine cutter wheels.

Established in 1945, Gil-Ray Tools has 48 years experience in sharpening all types of dull key cutters including code cutters, duplicating cutters, slotters and rotary file cutters. They sharpen and repair all materials including high speed steel, tool steel and solid carbide.

They also offer repair services for cutters damaged by others attempts at sharpening. All dull wheels are restored to blueprint specifications and can be sharpened many times.

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Circle 201 on Rapid Reply

Continued on page 44

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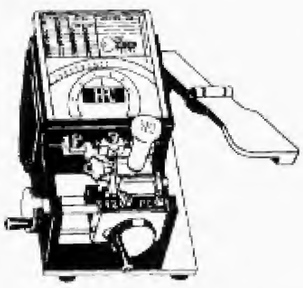
HPC's Punch Machine™

HPC's Punch Machine™, the portable option for code cutting is an excellent choice for mobile locksmiths.

The Punch Machine™ uses the same principle as the 1200CM, yet its portable size and manual power allow it to be transported almost anywhere. it weighs only 13 pounds and comes with a sturdy plastic carrying case, which makes it easy to take from job to job. The machine comes complete with two punches; the PCH-14 which is for many commercial keys, and the PCH-1011 which is for many automotive keys.



Also included with the machine is HPC's card making kit, The Little Mac™, which allows the user to make a card for any key which is able to be punched.

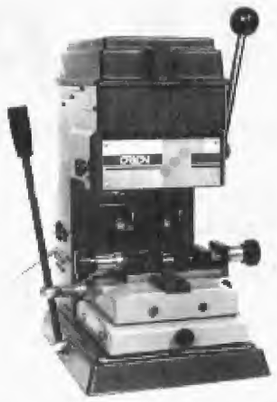
The Punch Machine™ is ideal for punching most domestic auto keys, foreign auto keys, as well as many commercial keys.

For *FREE* Information
Circle 368 on Rapid Reply

Ilco's High-Security Duplicator

For many locksmith, perhaps the most troublesome aspect of using a high-security duplicator is the continual readjustment required as cutters are switched to cut various types of keys. The KD56 C/E has been specifically designed to combat this problem while duplication side winder and center winder type keys.

The KD56 C/E produced by Ilco Orion, the Italian division of



Ilco Unican, features a patented electronic depth adjustment system. It is designed to allow very quick and accurate calibration of the machine. Setting or verifying depth adjustment takes just a few seconds and is accomplished without the necessity of spoiling a key blank in the "traditional" method.

The KD56 C/E is supplied with the proper cutter and guide to duplicate sidewinder type keys. These are easily replaced with other types for different applications. A wide range of adapters is available for the KD56 series machines to cut a variety of high-security type keys, including Tibbe, Chubb and the various dimple styles.

For *FREE* Information
Circle 369 on Rapid Reply

Jet Hardware's "PRO-SR."

The "Pro-Sr." extra heavy duty semi automatic key machine from Jet Hardware Mfg. Corp. is constructed with extra heavy-duty castings and is driven by a 1/4 hp motor. It comes with a three year or 30,000 key blank warranty, which ever comes first.

The Pro Sr. features strong reversible gripping vise jaws designed to accurately align from either the shoulder or tip of a key. It has long index type vise jaw handles and a 3" diameter high speed cutter. It has a unique heavy-duty carriage spring providing uniform pressure against the key guide and cutter.

For *FREE* Information
Circle 370 on Rapid Reply

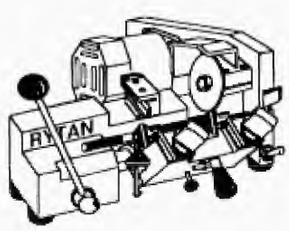
LaKey By Kustom Key

LaKey is Kustom Key's latest line of key blanks. These large head blanks are manufactured from quality brass and are embossed with very attractive graphics. While these keys are very popular with the "stylish-minded" customer, they are also perfect for the customer who needs a key that is easy to physically manipulate. A starter kit is available containing the most popular keyways used for homes, apartments, condos, and offices. The kit comes packed in its own organizer tray and includes a colorful counter display, and a window poster. A very fine product for the shop selling keys across the counter.

For *FREE* Information
Circle 371 on Rapid Reply

Rytan Inc.'s RY100

The RY100 semi-automatic key duplicating machine provides uncompromising key duplication, with key vises designed to keep the keys where you put them. The combination of high performance motor, 3-1/8" cutter, and a high speed "stick shift", will power you through your keys and into higher profits.



It is also adaptable for mobile work, with the 110 volt AC or 12 volt DC power plant.

For *FREE* Information
Circle 372 on Rapid Reply

TLS From Scotsman

Locksmiths call our factory from time to time for new instruction manuals or help in adjustment problems. When they're not sure which model of key machine they have, they say "Blue" or "Tan" or "Black."

Our key machines have been blue, tan, or black for 23 years. It's nice to know good things don't change. You can depend on your Scotsman for unequaled quality and dependability.

If your "Old Blue, Tan or Black" is in need of repair, sent it UPS to; Scotsman Security Products, 25181 Highway 88, Pioneer, CA 95666. We'll make your "old machine" purr like new.

For *FREE* Information
Circle 373 on Rapid Reply

The Silca Club

The Club is the leader in machines built for advanced technology laser/sidewinder and dimple specialty keys. The machine has tolerances as fine as .0015". It's accuracy and dependability have set the standard that all other manufacturers try to follow.

Special jaws are featured so that supplemental clamps are not required, not even for duplication of the small two track Mercedes keys. An exclusive synchronized tilting axis, which allows the jaws to be slanted gradually and progressively to any angle 45 degrees clockwise or counter clockwise, permits perfect but simple duplication of keys with angular cuts.

For *FREE* Information
Circle 374 on Rapid Reply

Continued on page 46

Continued from page 44

Star Key Introduces New Tooling

New management has transformed Star keys into a fresh new product, adding an impressive array of new equipment and tooling.

Our new brass alloy is now harder, but still great for impressioning. The precision of our blanking and milling operations has been improved to match original specifications, and we have added several steps to our finishing operations to add a sparkling, corrosion-resistant luster to our keys.

All of our keys are coined with raised lettering on the key head. an exiting new logo design has been introduced, which has a sharp, clean look while maximizing vacant space for locksmiths to imprint their own information.

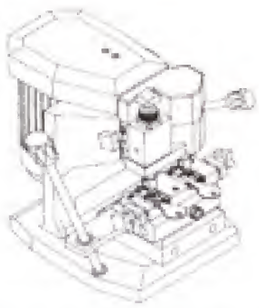
Star Key also customizes specially-embossed textured keys with a locksmith's own name, address and phone. Also available are a wide variety of mill-certified nickel plated and nickel silver blanks.

For *FREE* Information
Circle 375 on Rapid Reply

DiMark's 993 Top Drill

DiMark International, representatives for Borkey of Germany, are introducing a new machine, Model 993 Top Drill.

This machine is designed for cutting drilled keys and high security auto (milled-type) keys. Vises are changeable and



include auxiliary devices to hold keys securely without slipping. The machine is similar to the Borkey Top Cut, but does not offer rotating jaws. The carriage moves without spring tension. The machine is similar to the Borkey Top Cut, but does not offer rotating jaws. The carriage moves without spring tension. The machine is not yet available; U.S. deliveries will begin in mid-1994.

For *FREE* Information
Circle 326 on Rapid Reply

ESP's Model 5000 Key Machine

ESP's Model 5000 key

machine cuts auto-matically or manually with the flip of a switch. Standard features include 34MC high-speed steel cutter, bronze gauge fork and durable nylon brush.

Improvements include a gear motor with a 16.5 second cycle time for fast cutting in the automatic mode. Exacting tolerances ensure dependable accuracy time after time.

Other features include ESP's wide-carriage design to cut longer, bigger keys, and black-oxide hardened steel jaws for trouble-free vise action.

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Framon's #2 Code Machine

Framon's #2 Code Machine

is designed for a lifetime of use. Everything the locksmith needs to cut almost any cylinder key is included with the machine. Framon's Depth & Space Manual contains over 1500 different depth & space charts covering domestic, foreign, letterbox and safe deposit box keys. Three cutters are also included. The FC8445 all-purpose cutter, the FC8612 Medeco cutter, and a .045" high speed steel slotter. Also included are a set of steel 6" dial calipers, five spacing blocks, and a spacing clip for shoulderless keys. All Framon products are backed by a one-year warranty.

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Gil-Ray's Key Machine Cutters

Gil-Ray Tools Inc. manufacturers a full line of replacement cutter wheels for all popular machines. Gil-Ray sells direct to locksmiths.

Gil-Ray precision cutters are American made at their Bay City, Michigan facility. Cutters are in stock for immediate delivery for all code machines and most Duplicating machines, including imported machines.

A new product from Gil-Ray is a decoder wheel for HPC Code machines. The Gil-Ray Key Decoder™ uses the dial indicator of the HPC code machine to quickly decode any key that the locksmith has a code card for. The angle and tip of the decoder will fit into any key that may be encountered.

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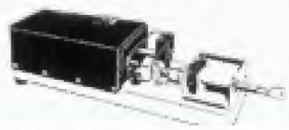
HPC's Tubular Duplicut™

HPC's new Tubular Duplicut™ (TKM-200) is a tubular key machine that duplicates seven cut tubular keys. It can duplicate a key from an original or off of a tubular pick with the feelers in the picked position.

Spacing for cuts is precisely determined by positive stops built into the machine. A knurled wheel clearly shows you what space you have the key aligned with and a spring-loaded ball bearing, positions the cutter to the exact spot on the key where the cut should be made.



A high impact plexiglass safety shield protects the operator. It is hinged so that it rotates up out of the way or down into position to provide a clear protection over the cutter. Built into the shield assembly is a gauge for the key blank that will be cut. A micro switch interrupts power to the motor until the cover assembly is rotated to the full down position for key cutting.

Gauging and cutting of the key blank is simple and sure, resulting in properly cut keys. The machine is easy to use and requires virtually no routine maintenance.

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KD75 Copymatic By Ilco

The KD75 Copymatic, developed by the Orion Division of Ilco Unican, is an automatic key machine for locksmiths. It features an automatic feed mechanism

ILCO

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that feeds the key blank, turns the machine on, cuts the operating key, shuts the machine off and loads a new blank for another cutting cycle. Blanks are fed into the machine from a hopper which, if kept full, will allow the machine to operate continuously.

The intent of the KD75 machine is to facilitate multiple duplication. The operator sets the pattern key, loads the blanks and presses the button. When the desired quantity is reached, the machine stops. It requires under one minute to remove the feed mechanism and return the machine to its original automatic duplicator mode.

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Jet Key Tower 7000

The new Jet Key tower, attractively finished in red, white and blue is the perfect solution to store and display key blanks. The four-sided rotary display features 272 hooks and a built in storage area for back up stock. Standing 40" high and using only 2 square feet of counter

space, it adds a fine addition to other displays in the modern locksmith's showroom.

Key Towers may be purchased separately or with Jet's manual or semi-automatic key machines. Also available is a key assortment, #PBA-180, that consists of 1,300 popular key blanks.

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Kustom Key's K3 Neuter Bow

Kustom Key's infamous K3 Neuter Bow is perfect your customers who want to prevent unauthorized duplication of their keys. The blank is manufactured in high quality brass or nickel silver using its own special headshape with no identifying lock brands or numbers stamped on them. The blanks also provide your shop with an inexpensive but

very effective way of advertising, since they can be manufactured with your company's name, logo, or special message embossed or incised on the head of the key. The Neuter Bow is available to fit over 500 commercial keyways including the new Kwikset Titan.

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Scotsman's 747X

When shopping for a new key machine for their shop or mobile unit, the locksmith wants to make a smart purchase. The need for all locksmiths is to be able to accurately duplicate and cut-to-code keys, but not all lock shops are in an area that demands cutting all three size keys.

If this is the situation you find yourself in, why not take a look at our 747X. It duplicates, decodes and cuts-to-code the standard size key. The "X" is streamlined in operation and maintenance. Accuracy and dependability are synonymous with all the Scotsman Key Machines. Call your favorite Distributor now.

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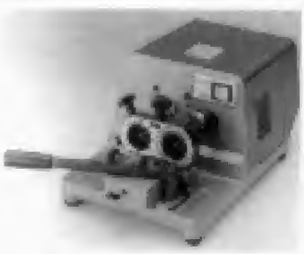
Silca Crown Machine

The Silca Crown is specially designed to cut tubular keys with frontal cuts and features synchronized, self centering clamps which hold various diameter keys.

The clamps automatically rotate the key blank proportionately as the original key is rotated. Rotation can be free through 360 degrees or set to stop in 6 or 8 predetermined positions.

An adjustment allows duplication of step cuts without changing the cutter or tracer point.

An optional code attachment installs instantly to cut regular Chicago and Ace keys without extra adjustment.



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PICKING THE LAGARD 2200

"The LaGard 2200 lock reminds me of the VATS introduction. Instantly locksmiths ordered all the tools, parts and options."

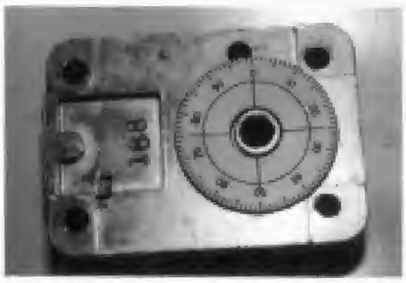
The 2200 LaGard key operated combination Group II lock is showing up in many places, both on outside and inside safe doors. This reminds me of the introduction of VATS system on cars. As soon as locksmiths heard about it, many ordered the key blanks and the interrogators, the 48 pin connectors and other options. It was three years before I did my first VATS key interrogation. When the 2200 lock first came out, I played with it on my bench and changed combinations. I did not see it in the field for many years. Now that I am running into it more often, I will review my methods of servicing and picking these locks, at least the old style 2200 series. Again, I have not met a new series 2200 combination lock.

The old and the new series are identical except for the keys. The old style keys were solid, while the new style keys are hollow at the end and fit over a post, similar to barrel keys with a post. I have not worked on any of these locks yet, and in a couple of years I suppose I will. I will then let you know if any major servicing differences arise.

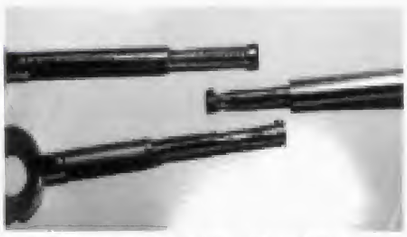
Photograph one shows an "exploded" 2200 style key operated combination lock. It consists of 4 wheels, 4 spacers, and drive cam. This is the combination wheel pack. The lever and combination bolt are not shown.

There are no movable flies in this lock. There is no connection between each wheel and the drive wheel. Each of the five wheels is independent and can be moved and positioned individually. This is done by moving the small protrusion on the inside of the wheel by means of the key or pick.

1. Exploded view of the LaGard 2200 key operated combination lock.



2. Drill at 97 to view edge of wheels and end of lock fence.



3. These ground down 2200 keys served as prehistoric lock picks.

4. The flat edge of this modified key is used to zero out the wheels in the 2200 old style key lock.

5. Insert the large groove in the 2200 key at the zero index mark on the keyhole.

6. Inserting the zeroing key.

Another interesting fact about these wheels is that they only move 180 degrees, from the 12:00 o'clock to 6 o'clock position, counterclockwise. That is why these locks are easy to pick. Watch out, Skip! More later.

In photograph two we see a magnetic ring placed on the case of the 2200 lock case and see that the proper hole is drilled at 97 to view the end of the locking lever. At this point, there are two avenues of attack to open the combination lock:

1. The easiest and fastest way to get the lock open at this point is to drill off the end of the lever over the combination wheels, but leave a stub for the drive lever. Insert a 2200 pick and turn the drive wheel to the right. The lever drops in, and the bolt withdraws.

2. The second way takes a few minutes longer. Insert a homemade 2200 pick into the lock and move each wheel until the gate lines up under the locking lever at all 4 wheel locations. Insert the pick fully into the lock and turn the drive wheel. The lever will fall into the gates and the lock will open.

Wait a second. Picks? Yes, they take about five minutes to make. This is after spending hours on picks that

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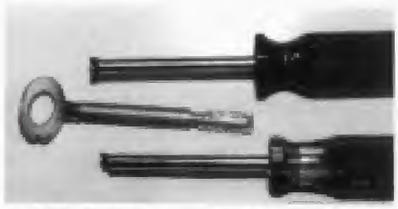
do not work well. We learn through experiment. The first set of picks that I made early on is shown in photograph three. This consisted of grinding down three 2200 keys until just the end of the key was left. This is time consuming, and the keys did not work well.

Photograph four shows the flat grooving and space available on my highly recommended "zeroing" key. This key is used to turn all the wheels to the start position which is in line with the opening index. Photograph five shows the insertion index at zero on the outside of the safe. From the position of this index, we know the handing of the key lock. 0 = right hand, 75 = Vertical Down, and 25 = Vertical Up. This helps in the hole drilling location.

Photograph six shows the insertion of the zeroing key and how it is cut to fit. Often, just using this key will solve problems with this lock. Sometimes the inner wheels can come out of alignment, and the customer cannot insert their key fully into the lock. This key has opened at least two old style locks. It set the wheels back so that the customer's key could be inserted in the worn combination lock fully to operate the lock correctly.



7. Modified 3/16" nut drivers make great picks.

8. Inserting the modified nut driver.

Photograph seven shows the set of picks that I use now on the old style 2200 LaGard locks. They consist of two modified 3/16" nut drivers and the zeroing key. Photograph eight shows the tip of the nut driver being inserted into the keyway. Finding that nut drivers with their tips half cut off work better than a factory adulterated key was serendipitous. I was looking for something else, and stumbled (literally) onto the nut driver idea. I can manipulate the wheels, including the drive wheel quickly with this tool. (Half the tip is ground away) It takes less than a minute to open the lock this way.

I always tell the customer that the lock should be replaced. If they argue and still want the same lock, I can use the old key lock assuming there was no case penetration and that the lever was not damaged.

Using these picks is also a fast way to set up a lock with no keys for new keys. Just pick each wheel to the change key hole with the help of an otoscope, insert a LaGard change key and turn, use the zeroing pick key to set the wheels to neutral, and insert the new 2200 key. After turning the new key to index on the key to the index line on the key ring (stop), take out the change key and the lock now has a new key to operate it.

Pick and Prosper!

"POWER-ON" STALLS!

"They put their business in an attitude where it could no longer fly! Their 'angle of attack' became too steep."

We've all seen illustrations in various science books, or encyclopedias that show "why" an airplane can fly. You know, the ones that show air rushing over the wing, which creates "lift" under the wing, and with the pull of the engine, the plane "flies." I studied the principle in Jr. High science. I studied the principle in "ground" school, while taking flying lessons. I have "flown" in countless commercial aircraft. I have piloted a dozen or so single engine planes.

In spite of the fact that I can intellectualize the concept of "flight." And, regardless of the fact that I have climbed into the pilot's seat of totally strange aircraft, and headed for the wild blue yonder without hesitation. And, despite my studies regarding the "Principles of Flight" - a tiny, primitive, voice in the back of my mind continues to whisper, "Magic, Jake! Black magic!"

Even today, when I see a 747 (which has a wing span longer than the Wright brother's first flight) thunder into the sky, or gently land, part of my mind rationalizes (scientifically, of course!) what it is seeing. That other, darker, part of my mind wants to say, "Bugga! Bugga!" or something to that effect!

Regardless of whether an airplane is kept aloft by an immutable physical law, or some unseen, mystic, force; the fact remains that occasionally ... one will fall down. When that happens, it's generally pretty messy since the sudden stop tends to twist, bend and break things. It has something to do with other physical laws regarding momentum, and ... terminal velocity!

One cause for airplanes falling down is called a "power-on stall," which is directly attributable to pilot error, and has nothing to do with black magic. A power-on stall is created when an airplane (usually in a climb.) is placed in an "attitude" where it can no longer fly, even though the engines are functioning properly. That is, the nose of the plane is lifted beyond the proper "angle of attack," where the engines can push the craft forward with sufficient force for the air flowing over the wings to create lift. Kinda' like trying to fly a kite on a windless day!

Fortunately, a power-on stall is relatively easy to recover from if the pilot reacts quickly enough, has enough altitude, has not p.o.'d Murphy lately, and keeps his wits about him. All that's needed is to get the nose down, and the wings level. That action puts the plane back into the proper "attitude," and it continues to fly. Nothing magic about it.

Have you ever noticed that locksmiths tend to suffer power-on stalls just like airplanes? I mean, you see a locksmith with a business that is growing everyday. The customers just keep coming and spending money. Their inventory can hardly keep up with the demand! They're running at peak capacity when, all of the sudden, they crash and burn!

Their trucks are sold or repossessed, their employees and suppliers are unpaid, and the Man From Uncle puts official looking seals and no-nonsense notices on their front door. What happened? What did they do wrong? They were making money, weren't they?

What happened was: they put their business in an attitude where it could no longer fly! Their "angle of attack" became too steep for their engines to maintain the momentum they needed to keep climbing. It happens everyday, in every type of business, ... it's caused by "pilot error." The locksmith(s) running the business overestimated the performance capabilities of their (air)craft. Again, there's nothing mystical involved, just a failure to recognize the "stall warning indicator."

Or, their engine was under-powered (under-capitalized) to begin with. That is, they were operating today, with no reserve, on money (fuel) they were not going to receive for another 30 to 60 days, or longer. They just did not have enough high-test fuel to properly power their engine. And, to compound the problem, didn't have the ability or know-how to get their nose down and their wings level (to back off, ease up or chill out), which would have brought them out of the stall.

How can I be so certain? I've been there. I've started a least seven separate and distinct businesses over the last thirty years. On occasion, I have soared with the eagles, so to speak. On other occasions, I have gone into a serious "power-on stall." A couple of times I "crashed and burned." And, a couple of times, I recovered from the stall and wound up making some decent money in spite of the "pilot error" that put me into the stall in the first place.

O.K. Either you're a new locksmith trying to get started or you've been at it awhile and realize that you are beginning to stall. You can feel the business begin to "burble." When a plane begins to enter a stall phase, it begins to shudder. That shuddering is called a burble and it means that you, as the pilot, must take immediate, corrective action. What do you do to recover from, or prevent, a power-on stall that could prove fatal to your locksmith business?

First, I believe you have to recognize the fact that you are the pilot. You are the person in charge. It is your hand that is on the controls of the airplane; and it is you that has your hand on the plane's throttle. After all, it was you who "preflighted" the plane. You started the engine. You taxied down the runway. You called the tower for "clearance." And, it was you that went hard-charging down the runway and lifted off into the wild blue!

In essence, you said: "Hey, World! Watch me fly!"

Consequently, it is going to be you that has to recognize when you are in difficulty and take the appropriate action to get yourself out of trouble. You can't say to yourself

that you know a stall is eminent, but if you hold this rate of climb for just a "little" while longer, you'll be able to continue your climb.

Wrong! If you don't immediately get your nose down and wings level, you are going to go into a stall, and possibly you'll crash and burn. And, no amount of black magic can save you.

There are any number of reasons that your business can experience a "power-on stall." All of them are directly attributable to "pilot error." That is, you as the pilot miscalculated the amount of power needed to maintain your rate of climb (growth).

That lack of power can be attributed to insufficient start-up capital, poor collection practices of your receivable, paying too much for labor, poor inventory control, bad credit policies ,and a dozen other "problems" associated with running your own business. See, no mysticism here either ... just poor judgment.

For instance, some folks took a ride in your airplane, and asked you if they could "charge" the ride. You let them do it. They came back later with some friends and "charged" that ride too. In the meantime, you had to buy fuel, perform routine maintenance on your airplane, pay parking and landing fees, buy some new tires and replace a prop.

What you haven't been able to do is collect from those people who have been riding in your airplane. Since you're not doing enough cash business to carry you, and you have probably used up your "credit line" (for inventory, repairs, salaries, and maintenance), you try to "push" the plane beyond it's capabilities and can feel it "burble."

The thing you need to do immediately is to get your nose down and your wings level. You do this by literally "backing off." That is, you temporarily reduce your "rate of climb." Then you begin to examine your original flight plan to see if it needs some mid-course corrections.

If slow paying accounts are one of the problems that you're facing, step up your efforts to collect the money that they owe you. Don't be shy about asking for payment. After all, it is your money! Don't give them anymore rides in your airplane until they catch up on the past due amount, or pay you C.O.D. until the over-due balance is paid.

Re-examine your credit policies with a more cynical eye. That is, don't extend credit just because the company is a "big" one, and they only "work on purchase orders." Look at every new request for credit with the thought in mind: "Am I willing to lose this money?." After all, you have to buy fuel whether the customer pays you or not.

Look to see if your "ground crew" (that is your labor force) is costing you too much money. If your labor costs are exceeding 18 percent of your overall gross, you could be headed for a stall. You either have too many mechanics, you're overpaying the ones that you have or you are not charging enough for the rides you give. Yes, you have to keep your plane maintained and running, but you do it with a proper sized ground crew.

If you're operating out of a shop, rather than mobile, determine how much the shop is costing you. Add up the rent, electricity, heat, licenses, permits, and depreciation.

Does that expense justify the "walk-in" business that you are getting. How big of a "bite" is the shop taking out of your gross earnings? Do you really need to have a shop, just to park your truck(s) in front of? Often, not spending money is a faster way to gain altitude than trying to power out of (wasting fuel on an unnecessary climb) of a bad situation.

Finally, take a good look at your promotional policies. You know, the things that get the people to come ride in your plane in the first place. Are you "sky-writing" about your business, or are you "whispering down wells"? You've got to let the people know that you are "flying," and that they'll get the best service from your airline.

And, when a customer does take a ride in your airplane, be observant, and listen to the customer. You never know when they are going to give you an opportunity to sell them a side trip (add on other locks or security devices) before they get to their original destination. Be ready for it. Look for it. And, when you see it ... jump on it!

Believe me, flying can be fun. Nothing else can give you quite the same feeling of independence and freedom. If you're really good, you can soar with the eagles. If you're reasonably competent, you'll find the skies friendly. If you're careless, or get that way, you're headed for a power-on stall. If you don't take the proper steps to immediately correct the stall, you're going to join countless others who, through pilot error, crashed and burned ... you can "bank" on it!

OPENING TIPS

OPENING THE 1993 VW EUROVAN

"Since the importation of the Vanagon to the U.S. market ceased, the replacement has been eagerly awaited."

Volkswagen's newest idea in styling is offered for the 1993 model year as the completely new EuroVan. Earlier versions of the legendary box were the cult classic 1960's vintage Microbus (do you remember the 27 window version?) and the latter '60's VW Bus. Then in the late 1970's and '80's we saw the Vanagon take over this spot in VW's product offering. Since the importation of the Vanagon to the U. S. market ceased in '90-'91, the replacement has been eagerly awaited.

As with most vehicles, there is more than one way to gain entry. Picking, impressioning, or sight reading of locked-in keys are some possible means of entry. Because we are concentrating on opening the vehicle rather than fitting keys to it, we will use the simplest and fasted method.

1. The VW EuroVan.

On the EuroVan, (*see photograph 1*) I suggest you use Pro-Lok's AO-01 "Large Handy Tool" to reach under the vertical button head and unlock the door. Here are the details:

(1) Identify the interior door lock button on the FRONT PASSENGER door.

(2) Wedge the door between the weatherstripping and the glass about 6" from the REAR edge of the door.

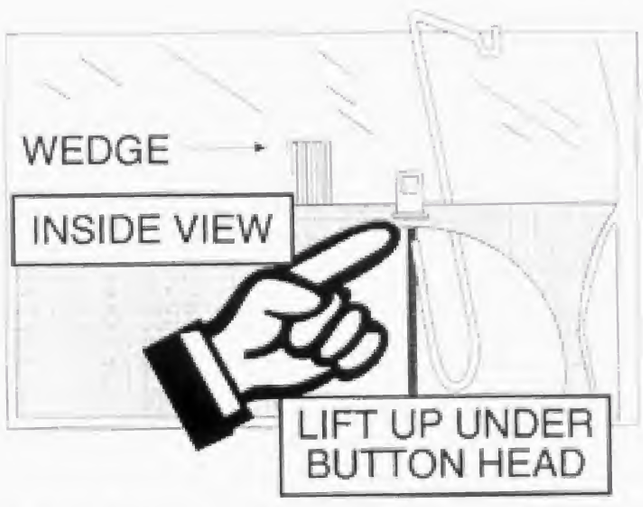
(3) Insert a Krypton light (like Pro-Lok's AL2000) into the door and visually identify the VERTICAL ROD located directly below the interior door lock button.

(4) Insert the AO-01 into the door with the "J" tip of the tool rearward, between the weatherstripping and the glass about 8" from the REAR EDGE of the door (*see photograph 2*).

(5) Lower the tool until the tip is about 5" down in the door.

(6) Rotate the tool about 80 degrees clockwise. Lift the tool up about 3 ". The tip will lift up under the interior door lock BUTTON HEAD connected to the vertical rod.

2. Insert the tool in the door as shown



3. Slowly lift the tool to open the door.

(7) When the tip of the tool is UNDER the button head, you will see the button move. Lift up slowly on the tool to unlock the door. (*See illustration 3.*) NOTE: When lifting up, do so gently. It should take no more effort to lift the button head in this manner than it does to lift it with your fingers from inside the vehicle.

MINI SECTION

PADLOCK POTPOURRI

"The padlock has evolved into a piece of precision hardware capable of meeting most any security need that a customer has."

Abus Padlocks

The Abus Granite line of padlocks have surpassed international testing requirements for 4-1/2 ton pull strength, saw resistance, and works smoothly at - 40 degrees Fahrenheit. The Abus Plus Granite Line features rotating disc cylinders, provides up to 250,000 key changes and is highly pick resistant. These padlock bodies and shackles are constructed of a special steel alloy, and are available with a malleable iron protective shield for additional security.

The Abus APA 20 Locksmith Brass Display features a range of Brass Padlocks for every security application. The 55MB Series Marine Brass has a body and shackle of solid brass. The Abus Black Gold All Weather 84 Series features a brass shackle and body with a handsome protective vinyl sheath. Other 84 Series features include double locking shackle, solid brass cylinder, stainless steel cylinder springs for rust-free operation, and is available in four sizes.

Abus 85 and 55 Series feature brass bodies and case hardened steel shackles in a wide range of body sizes and shackle lengths.

Abus also offers a complete line of rekeyable brass pin tumbler padlocks that key into today's most popular locking systems. Available both key retaining and non-key retaining.

The Abus stainless steel Diskus is the original concealed shackle padlock. Originally designed and marketed over 40 years ago, the Diskus Line has grown to six models

in a range of sizes with pin tumbler and disc cylinder precision mechanisms. Like all other Abus padlocks, each Diskus has a lifetime warranty.

In addition to the Abus Plus Line, the Brass Collection, and the Diskus, Abus offers a wide range of laminated pin tumbler, high security padlocks; keyless padlock security including dial combinations, resettables and klick locks. hasps, passage sets, locksets, deadlocks, door and window hardware, cycle locks and chains round out the Abus line of padlocks and security hardware.

For *FREE* Information
Circle 395 on Rapid Reply

American Lock Company

The American Lock Company has reinvented itself! Happily for this family-owned manufacturer and its customers around the world, it has done so without the pain and trauma usually associated with such a rebirth.

The suburban Chicago company's transformation into one of the hardware industry's fastest-growing performers has occurred under the leadership of President Bill Noone and Executive Vice President Duane

Grahovec. These two men assumed their roles in early 1992, when American Lock's owner and long-time president, George Junkunc, passed away.

Noone and Grahovec have worked together to surround themselves with a seasoned executive management team that has successfully taken on the gritty challenge of intensifying the company's traditional commitment to quality production and unmatched service, while taking its products, manufacturing processes, and marketing techniques into the 21st century.

Founded in 1912 by the late Mr. Junkunc's father, American Lock Company has distinguished itself from the beginning as an innovative producer of the finest quality padlocks. Over the years, it has introduced the first dial combination padlock, solid body construction, double steel ball locking mechanisms, interchangeable lock parts for the greatest serviceability, and more.

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CCL Security Products

CCL (Corbin Cabinet Lock Division) aside from providing quality products is now creating packaging and merchandisers that help dealers to sell their product.

CCL's Sesamee line of "Keyless" Combination Locks is packaged in full color "peg-board" cards and offered with a colorful 15-1/2" x 15-1/2" display board and a unique "cut-a-way" countertop display. The "Keyless" Combination Cam Lock, (available in three lengths) also packaged on a full color "peg-board" card, has a "Try-me" countertop display available.

Each one of the Sesamee line of "Keyless" padlocks offers 10,000 user-changeable combinations and a Lifetime Guarantee. Six styles are available: The Premium features a chrome plated hardened steel shackle (1" or 2-1/4"), solid brass body and all-

brass mechanism; The Classic features a chrome plated hardened steel shackle (1" or 2-1/4") with pressure cast body and brass mechanism; The Marine is non-corrosive with a choice of solid brass body, 1" solid brass shackle and all brass mechanism or with a chrome plated brass shackle and body.

The CCL line of Disc Tumbler Locking Shackle Padlocks is available keyed alike, keyed different or masterkeyed. All locks feature hardened steel, chrome plated shackles and are available in a range of shackle heights. The 1-1/4" breakable shackle is perfect for emergency entry.

The collection of pin tumbler padlocks is available keyed different, keyed alike or masterkeyed. Available in an assortment of sizes, finishes and shackle heights, these locks come with hardened steel chrome plated or solid brass shackle, or a silver/gray cast body with hardened steel chrome plated shackle.

A full series of colorful merchandisers are available for the following lines: Rekeyable Cabinet & Door Locks; handle and Panelboard Locks; Cam Locks & Accessories; Rekeyable Padlocks; and Pin Tumbler Padlocks.

For *FREE* Information
Circle 397 on Rapid Reply

Federal Lock Company

With cornerstones of dedicated experience, superior quality and service, Federal Lock Company recently became the latest contributor to the security industry. A broad range of products, including solid steel (ranging from 1-3/4" to 2-1/2" wide bodies), "Classic Steel™ (a solid steel selection which offers an enhancement to the already long accepted round construction models), shrouded shackle, "Lock Tech" and "OEM Tech" series padlocks, highlight Federal's introduction to the market.

Product serviceability is a key factor in Federal Lock's philosophy in the development of its padlocks. Federal Lock has responded to years of hands on experience and knowledge of competing products in the entire security industry.

In addition to a full line of padlocks, nickel plated hasps, service parts and pinning kits, as well as collars, chains and identification tags are available to strengthen product serviceability.

A knowledgeable sales support team across the county complements skilled security professionals at the production facility in Romeoville, Illinois. "Customer service is of the utmost importance in today's market," according to Kenneth R. Erickson, President, "and Federal Lock recognizes this and is prepared to offer it at its best."

"This ongoing commitment to customer service," adds Erickson, "grows into a communication/service 'partnership' with the customer enabling Federal to respond and react to a customer's, and ultimately to the entire market's product and service requirements."

With innovative designs already planned for the future, Federal Lock Company will continue to be a leading responsive force in the security industry's demand for quality products and service performance levels.

For *FREE* Information
Circle 398 on Rapid Reply

Hercules Industries

Hercules Industries is an established manufacturer of solid brass padlocks. These locks are precision crafted out of solid brass, making them rust-proof and weather resistant. They are great for outdoor use on storage buildings, gates, boat and marine use, lockers, storerooms, and anything else which needs to be secured.

The Hercules padlock has a five tumbler pin design and is available in five different series including a meter pin lock that is used for newspaper racks, vending machines, meters, etc.

The padlocks can be manufactured with a brass or hardened plated steel shackle in a variety of shackle clearances to suit an individual's padlock need.

Accessories including keyblanks, cut keys, steel and brass chains as well as lock and key stamping are also available. Shipped factory direct, the Hercules padlock is made in its entirety right at the plant.

Each lock is individually tested before it leaves the plant assuring the consumer of a quality product. Hercules Industries, Inc. is proud of the fact that their brass padlock is 100 percent made in the USA (a feature not found in most padlocks on the market today) and that they are sold throughout the United States, including Alaska.

Founded in 1969 on four basic principles— excellent quality, low competitive prices, prompt delivery, and outstanding customer service — Hercules Industries, Inc. strives to meet the ever-changing needs in the padlock industry and to bring to its customers a superior product.

For *FREE* Information
Circle 399 on Rapid Reply

Master Lock

When it comes to purchasing everyday items commercial buyers are often creatures of habit.

Although commercial users are sincerely concerned about security, many make buying decisions based on familiarity rather than on actual product benefits.

"We know locksmiths who have proactively offered security advice to commercial buyers and experience increases in their business, because they established themselves as experts," said Tom Smith, commercial product manager for Master Lock Company, the world's largest manufacturer of padlocks, doorlocks, and related security items.

"Commercial buyers want high-quality protection at a fair price. They appreciate security professionals who take the time to explain high-security padlock features, such as increased pick resistance," Smith added.

"As an example, our Pro Series™ line of padlocks offers unique benefits, including: Xenoy® thermoplastic covers to protect the padlock bodies from corrosion, contaminants and temperature extremes; flow-through debris channels and cylinder dust covers which keep lock mechanism free from jamming due to rain, snow and dirt; Boron alloy steel shackles which offer 15,000 lbs. of resistance to cutting and sawing, more than twice that of standard steel shackles; Special spool pins that make the padlocks extremely difficult to pick.

Realizing that it's more cost effective to inventory a few basic products with a selection of options than to carry all pre-assembled products, master Lock designed Pro Series with: removable shackles and cylinders which allow shops to offer the full line without investing in a large inventory; 12 compatible cylinder options which permit quick and easy integration to existing padlock systems; rekeyable cylinders to add flexibility and restore security instantly, at low cost.

"We're committed to providing locksmiths with high-quality padlocks that meet the special needs of commercial buyers, "Smith said. "We're equally committed to helping

position locksmiths as security professionals with commercial customers and, as a result, increase sales," he added.

For *FREE* Information
Circle 400 on Rapid Reply

S&G Environmental Padlock

The Sargent & Greenleaf Environmental Padlock is a premium lock that combines protection against vandalism and surreptitious entry with outstanding resistance to adverse weather. S&G's engineers designed the EP to meet the demanding needs of railroads, vending machine operators, trucking companies, utilities, or any customer who needs a tough padlock that can hold up to the damaging effects of an inhospitable environment.

This line of padlocks incorporates both case hardened steel and stainless steel shackles, and features padlock bodies made of a copper-infiltrated steel alloy that is electroless nickel coated for protection from invasive corrosion. Although the locks may discolor, corrosion cannot penetrate far enough to weaken them or impair their operation.

The patented key cylinder uses rotary discs that not only resist clogging with dirt and ice, but act to clean themselves when the key is turned in the lock. The top-loading cylinder and its two sidebars control two stainless steel balls which lock the shackle securely in place. The disc and sidebar design also make the EP impervious to standard picking tools and impressioning attempts. And all Environmental Padlocks are key retaining to provide extra security.

Environmental Padlocks come in 1-7/8" and 2-3/4" body widths, with shackle diameters of 5/16", 3/8", 7/16", and 9/16". You can also choose from a variety of shackle lengths to provide necessary clearance for most applications.

Equipped with a compact service kit and operating keys, you can rekey an existing Environmental Padlock in just a matter of minutes. If necessary, you can replace parts or install a different shackle just as quickly.

For *FREE* Information
Circle 351 on Rapid Reply

The Wilson Bohannan Company

The Wilson Bohannan Company has been providing industry unmatched security since 1860. A true expression of American craftsmanship, the all brass WB® padlocks continue to reinforce their long-standing reputation for uncommon quality, uncommon reliability. In security concerned industries and institutions including government and military installations, utilities, railroads, refineries, and manufacturing operations...chances are rustproof WB padlocks will be ensuring security.

The look of our locks has changed over the years but our quality construction, precision engineering, and commitment to total customer satisfaction remain unchanged. Our locks are still all brass. Still engineered to the highest standards. Still inspected at each stage of assembly, not just as a finished product.

After more than a century of manufacturing its singular line of WB padlocks, Wilson Bohannan Company expanded its proven product line, introducing Top Brass® brand padlocks to the consumer market.

Top Brass locks feature the same quality construction features, the same no compromise Made-in-America workmanship of the renowned WB locks. These top-of-the-line padlocks, made exclusively and in their entirety by Wilson Bohannan, have found a welcome market, just as WB locks have long enjoyed. They're the ideal choice for consumers who place a premium on security and safety, inside or out.

WB and Top Brass are the only American-made padlocks that offer truly rustproof service under the harshest conditions. They're made with watch-like precision, but they're rugged.

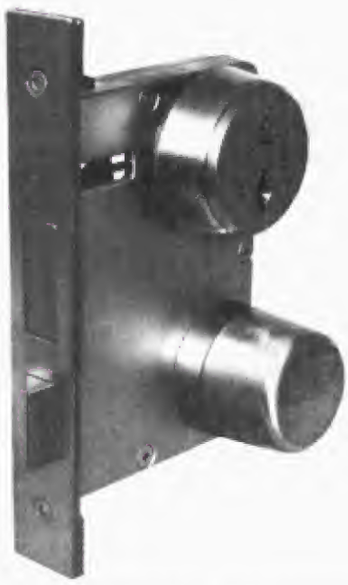
At the Wilson Bohannan manufacturing plant the locks are subjected to ongoing quality control unmatched in the industry. This translates to total reliability of each and every lock that leaves our plant. And explains why each lock carries a lifetime guarantee.

by Rick Segerstrom

SOUTHERN STEEL'S 10110 LOCK

"Southern Steel, Folger Adam and Adtec produce similar locks with the same functions."

This month let's delve into the different locks and designs on a one-on-one basis. Now for the purpose of these articles I am going to use the specifications of the Southern Steel Companies brand of locksets. Both Folger Adam and Adtec produce similar locks with the same functions. Most of these locks will interchange into the mounting holes, but the internal parts and components are slightly different. Therefore if you are working on a facility that has Folger Adam equipment, you may replace an entire lockset with another brand in an emergency situation, but you cannot use parts from another brand to effect repairs. Also, remember that I advise you to keep each facility as consistently single branded as possible. You will find this extremely helpful if you need to order parts for this facility at any time. If you intentionally install different lock brands into a facility, you will find yourself making several trips to correct any problems. Example, if you order repair parts from two different factories, one may arrive weeks ahead of the other, this necessitates trips to the facility for each shipment arrival.



1. Southern Steel's 10110 Institutional mortise lock.

You are probably familiar with full mortise type locksets. In the detention industry these are prevalent also. Only a few differences are apparent. Look at the technical specs for this lock:

Southern Steel 10110 Institutional Mortise Lock. *(See photograph 1.)**

10110-1: Keyed One side
10110-2: Keyed Both sides
Lock Size: 4-3/16"x1-1/4"x 8-3/8"
Lock weight: 11 pounds
Springbolt size: 1-1/4"x 9/16"
Springbolt Throw: 1/2"
Deadbolt size: 1-3/4"x 5/8"
Deadbolt throw: l"

APPLICATION: Swinging doors for entrances, corridors, living quarters, medical and administrative offices or any low security areas.

FUNCTION: Deadbolt is locked and unlocked by a mogul key at the door. Springbolt is activated by door knobs. Variations such as deadbolt without a springbolt or springbolt only without a key cylinder are available.

TECHNICAL DATA:

Standard Finish: US4 (optional US26D trim and face plate)
Cover Case and Face Plate: Yellow Brass
Springbolt And Deadbolt: Silicon Bronze
Mogul Cylinder: Yellow Brass
Mogul Keys: Silicon bronze/copper alloy
Pin Tumblers and Engaging Balls: Stainless Steel, five tumbler's per lock.

STANDARD FEATURES:

- Springbolt and deadbolt
- Standard knobs with fasteners
- Standard Rose with fasteners
- Strike with fasteners
- Mounting screws
- Day keyed cylinder

SPECIAL FEATURES:

- Springbolt only (no cylinder) specify 'LB'
- Deadbolt only Specify 'DB'
- Safety Knobs. Specify ' SK'

The functions of this lock are as follows:

1. Lock bolt is locked and unlocked by Mogul key cylinder.
2. Springbolt is activated always by door knobs. Different types of this lock use different catalog numbers. Example, 10110-lS-3L-SC-6A TYPES:

1. 10110-1 Key one side
2. 10110-2 Key two sides
3. 10110 Standard or reverse bevel
4. 10110 Knob one side
5. 10110 Knob two sides

KEYING:

lH: (keyed Hinge side only)
lS: (keyed stop side only)
2: (keyed both sides)

HANDING:

3R: Right hand standard bevel
3L: Left hand standard bevel
4R: Right hand reverse bevel
4L: Left hand reverse bevel

KNOBS:

5: Hinge side
6: Stop side
7: Both sides

TYPE OF KNOBS:

A: Knob pull
B: Safety knob
C: Standard knob

By using this information we see that the lockset in our example, 10110-lS-3L-5C-6A is a model 10110, keyed on one side only with the key cylinder on the stop side of the door, door is handed left and needs a standard bevel to the

springbolt. Hinge side we want a standard type of knob design and on the stop side we need a knob pull only.

This type of information is required when ordering any lockset from these manufacturers. The requirements in the detention industry are never standard. That is why the options of ordering are so great.

This type of lockset can be used on hollow metal, metal, or wood type doors.

The model 10110-LB is the latchbolt only mortise lock and is used on swinging doors requiring no security. The Model 10110-DB is the deadbolt only type mortise lock and is used on swinging doors that require only deadbolt; i.e. lower security areas

The factory recommends several service criteria. First of these should have been done on initial installation but it is always wise to recheck these points. First the door should have 1/16" in-play when closed and locked. This means that you should be able to push on the door after it is locked and the lock fully engaged, and the door will move in and out about 1/16". This allows for full extension of the springbolt and deadbolt in the receivers. You should also have 1/8" gap between the door and the frame. A 1/8" gap isn't much. In general locksmithing I've seen gaps so wide that the strike wouldn't contact the keeper at all. However in detention the tolerances are much greater. The factory says the gap is to be only 1/8".

Next check to see that the deadbolt clears keeper when unlocked. Service and preventative maintenance for these locks include checking for foreign objects often in lock keeper first and foremost. You would probably be surprised at the number of times a prisoner will stuff some material into the keeper of the door. These objects can be anything, gum, paper, matches, anything to fill up the void so the latches and deadbolts won't extend fully.

Next check for rough operation of the lock. This is an early indication that something is wrong and needs attention. The factory suggests spraying with a silicon lubricant on all moving parts once every three months. This doesn't mean dousing the entire lock with WD40. It means a light spray of a good quality silicon spray. I have used Triflow with good results. Finally, check for any loose screws and tighten. This should be done every month.

I guess that since I spoke about standard and reverse bevels that I should explain these in a little greater detail. The term bevel has to do with the springlatch on the mortise lockset. If the door is left handed for example, you know that the door can either swing inward or outward and still be a left handed door. This is where the term bevel comes in. The easiest way to determine bevel is to hold the lockset the same way that it would go into the door, with the springlatch either to the left or the right. Now look at the springlatch itself. If you can see the flat side of the springlatch, then you have a standard bevel. If however you see the angled side of the springlatch, you have a reverse bevel. You will find that inswinging doors usually take standard bevel type locks.

Next month we will discuss the Southern Steel model 10115. This lockset is slightly different from the 10110.

* Specifications taken directly from Southern Steels class notebook and catalog.

by Dave Cox

FORT KNOX ON GUN SAFES

"Fort Knox offers 14 models with heavier steel, more locking bolts, corner bolts, and reinforced doors.."

I would first like to praise and compliment the professional Locksmiths and Safe technicians across the country. Many times their expertise is overlooked. A true professional has countless hours of training and experience. They have spent large sums of money in publications, conventions and workshops to perfect their skills in order to serve their customers and safe companies warrantee work. They know the different levels of security available for businesses, banks and residents. Because of their knowledge of security, they want to see their customer with the most possible security available. In fact, in this day and age everyone should have a bank vault in their home. Unfortunately, not everyone can afford an $18,000.00 TL30 or TR/TL30x6, not to mention accommodating a 4500 pound safe in their home.

Years ago, the gun safe industry started building large security containers that were designed to keep guns out of unauthorized hands; or to quote from an article out of The National Locksmith, August 1993, page 62, "To keep curious fingers away from guns." However, what they failed to mention is the progress the gun safe industry has made over the recent years. In the article by Dave McOmie I could not help notice that the safe he was working on, and the photos taken, were of a very dated safe.

A Fort Knox gun safe

Like any safe of this nature, it was designed as a Residential Security Container. It is the lightest safe manufactured by Fort Knox Security Products. In fact, it was designed to compete with 70 percent of the gun safes on the market, offering enough resistance to secure any weapon from a burglar for a period of time. On the average, the common burglar will spend no more time in your home than 7 to 12 minutes. Time is the key word here. With enough time, a good safe technician can get into any vault, safe or security container, including a bank vault, TL30x6 and even Fort Knox the National gold reserve.

The job is not getting any easier for these technicians because of the constant improvement in security products. For instance, the safe that is referred to in the article has had many advancements to improve its security. Several years ago Fort Knox added an additional relocker as a fail-safe measure around the S&G lock. This, and more recent improvements include ball bearings recessed in the hard plate protecting the lock and Boltguard drill deflectors protecting the locking bolts and adding reinforcement to the door frame.

In fact, these along with other improvements, have now earned a UL listing for a Residential Security Container. The makers of the Fort Knox Vault still agree that people with excessively large amounts of valuables should consider a higher rated safe if they can justify the $10,000.00 plus price tag and the massive weight involved. In 99 percent of the cases, a Residential Security Container is more security than most homeowners would ever need. Fort Knox has received a number of letters from homeowners who have had unsuccessful burglary attempts, from attackers who had several hours to gain entry. There are even statements from some locksmiths who had their hands full in entering a Fort Knox even with their expert knowledge.

Mr. McOmie failed to mention that not only can he "crack" or enter a gun safe, he could also enter a TL 30 safe as well. Because of the invaluable contributions these skilled locksmiths have made the safe industry has had to work harder to improve their product, making them stronger, safer and harder to break into. The measure of security an individual needs is a personal decision. The safe shown in his article is the economy end of the Fort Knox line that was several years old. However, Fort Knox offers 14 different models to choose from. Safes with heavier steel, more locking bolts, security packages that offer additional liners of steel inside the safe, corner bolts and reinforced doors.

Continued on page 101

SHOP TALK

Helpful questions and answers

Shop Talk answers readers questions on any locksmith related topic. Only letters judged to be of general interest will be published. We regret that we cannot answer individual letters. Because of the volume of mail, only those questions answered in the magazine will receive answers Send your questions to *Shop Talk*, **The National Locksmith**, 1533 Burgundy Parkway, Streamwood, IL 60107.

In the September 1993 issue of *The National Locksmith*, Joseph Keith, Brockton, MA asked a question regarding the name and manufacturer of a car opening tool fitting the description in illustration one.

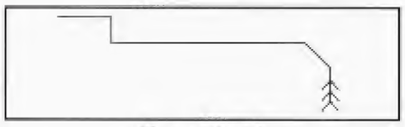


Illustration 1

We are happy to say several calls identifying the tool and its manufacturer came in. The first was from Joe Buchner of Aurora, CO. Joe informed us that the name of the tool is the Dogtooth and is made by ABC Lock Co. Rte 1 Box 12 C, Council Bluffs, IO, 51503. Anyone wishing to order the tool can call ABC at 402-346-8338.

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Q: *I serviced a 1986 Pontiac 6000 STE with the radio controls in the hornpad. After reassembling the column and turning the key to on, I noticed that the radio display said "LOC" and we could not use the radio. How do I clear or reset the unit.*

Ted Darow
Illinois

A: When working on the GM with radio controls in the hornpad, it is always a good practice to first disconnect the battery and ground yourself to the car. While the chances are slim, a static charge could damage the radio components.

As to the "LOC" indication on the radio display, this is a lockout feature designed to thwart radio thefts.

According to Tom Mazzone, of Mazzone Lock and Key and a GM specialist, a small chip is placed in the radio that coincides with a chip placed in the hornpad. In order to operate, the radio must see and acknowledge the presence of the correct chip in the hornpad.

In a typical radio burglary, the hornpad is usually not taken, leaving the radio inoperable. Where a hornpad has been damaged, the dealer will purchase a new hornpad and program the radio and new pad to see each other.

In your case, once the hornpad was removed the radio could not see the chip. Recognizing this as a burglary attempt the radio went into "LOC." To reset the radio, simply press the "Mute" button on the hornpad. The "LOC" display will disappear and the radio should operate as normal.

****

Q: *I'm working on a Steelcase cabinet that uses a lock by Chicago Lock Company with the FR400 code. A tag on the cabinet says, "1981 Model #836551." Cutting the key is easy enough, but I was told the plug could be removed without taking apart the lock. Is this true? If so, how do I remove the plug? If not, what is the easiest way to remove the plug for rekeying this lock?*

Jeff Ehrensaft
Illinois

A: The particular lock and code series you are working with has a unique way of determining the correct keyblank to use. Divide the code number by 4. If the remainder is 1, use Chicago keyblank K101. If the remainder is 2, use Chicago keyblank K102. If the remainder is 3, use Chicago keyblank K103. If the remainder is 0, use Chicago keyblank K104. This information you will need to know so the proper blank is chosen for rekeying the lock. In your case 400 divided by 4 is 100 with a remainder of 0. Therefore the correct keyblank is K104. (Ilco 101AM, 102AM, 103AM, and 104AM.)

It is true that many Steelcase cabinets (i.e. file cabinets, credenzas, desks) can have the plug removed without disassembling the lock. Many desks and credenzas, for example, that use the AA201-1100 code series have a small access hole in the face of the plug. To remove the plug, insert a working key or pick the lock and turn. In the unlocked position a probe can be inserted into the access hole to depress a moon shaped retaining wafer.

For credenzas and file cabinets using the FR and XF code series made before June 1986, the top drawer will have to be removed and the lock taken out for rekeying. In cabinets made June 1986 and after, a plug removal tool is used. The tool is actually a modified blank, with an elongated tip that depresses the retaining wafer. Insert the key and turn, the plug will come out.

The change tool for this lock can be purchased from Steelcase as part #87-7102002 and costs approximately $2.90. The Steelcase phone number is 616-247-2710.

****

Q: *I just recently started servicing safe deposit locks and would like the spacing and depth information for the renter key and guard key on the Yale 3300 series lock and HHM lock.*

Wayne E. Swanson
Nebraska.

A: Well, Wayne, for anyone just starting out in safe deposit locks let me recommend the Continental Code cards for safe deposit locks. These cards are a wealth of information on safe deposit locks and specifications. Regarding your particular locks, the Yale 3000 series is an older lock and like the HHM, the spacing for these locks is constant but the depths are not. The safemen I contacted on this matter recommended replacing the boxes. If this is not possible, keys will have to be fitted with the locks present.

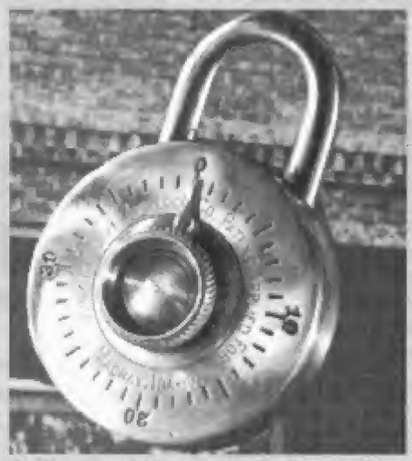
BUSINESS BRIEFS

News from the Locksmithing Industry

Industry Interview...

First impressions aren't always deceiving. In my latest jaunts to industry manufacturers, I had the opportunity to visit three Illinois based companies: American Lock Co. of Crete, Folger Adams of Lemont, and Marlok of St. Charles. All three visits revealed why these companies have had such an impact in their respective segments of the security industry.

No question that American Lock Company is known by us locksmiths for their padlocks, especially its signature silhouette, the 700 series. In fact, American has not only been manufacturing solid body padlocks for 82 years, they are also credited with inventing the first keyless combination lock. (*See photograph 1.*)



1. This combination padlock was the first of its kind.

In addition to combination padlocks, company founder John Junkunc designed the double steel ball locking mechanism. This success was followed by the development and introduction of the hardened steel shackle and a complete line of solid body padlocks with the double steel ball locking feature and removable, rekeyable brass cylinders.

John Junkunc's son, George, inherited his father's inventiveness and later became company president. The string of successes continued under his leadership:

1958 - A completely new "blue dial" combination padlock, featuring a polished stainless steel outer case with an easy-to-read and easy-to-turn dial.

1963 - A complete line of five pin tumbler padlocks featuring removable and rekeyable brass cylinders and double steel ball locking mechanisms.

1973 - Super security padlocks, including the solid steel seven pin tubular cylinder and the model 747 shrouded shackle six pin tumbler cylinder padlock.

1975 - The shackleless model 2000 padlock with six pin tumbler cylinder.

George Junkunc died in 1992, leaving the business to be continued by members of the Junkunc family. William F. Noone was named President and Duane Grahovec is Executive Vice President.

After speaking with both, it is quite apparent that American is even more focused on providing its customers with top quality and service.

According to Noone, locksmiths make up the majority of their total sales. And it is within this market, he says, that American is continuing to focus its attention. At the recent ALOA trade show in Chicago, more than 200 locksmiths signed up to be on a market research survey team with American. The group, called the "Solid American" team, will share their opinions and expertise on how American can better serve them and their industry, including ideas for new products.

The other side of the American story is its product quality.

"American Lock is proud of its position as a quality manufacturer," said David Anderson, National Sales Director - Commercial. "And that quality can be found in all of our

Industry News...

The Illinois Locksmith Association has elected new officers. William Pulley, CRL, President; Paul Schaefer, Vice President; Wayne Wisely, Treasurer; Don Holtcamp, Recording Secretary; Jim Sloan, CRL, Corresponding Secretary; Gene Doan, Director; Jim Newborn, Director;. The I.L.A meets the first Sunday of each month, at 1:00 p.m....

Mr. Don Mears has been added as **Silca's** Western Zone Manager covering the states of Arizona, California, Colorado, Nevada, Oregon, Utah and Washington. Don brings with him almost 15 years of experience as a former representative selling Ilco products...

William Houck, president of the **Wilson Bohannan Company** has announced the appointment of **Walsh and Associates** of Mokena, Illinois, to develop and implement its

William R. Walsh

commercial sales and marketing programs for North America. Headed by Bill Walsh, Walsh and Associates will be developing one and two step distribution programs for the multi-product Wilson Bohannan line of solid brass padlocks, rim and mortise

cylinders, and complementary accessories...

National Cabinet Lock announces the winners of its prize drawing contest, held at the 1993 ALOA convention in Chicago. The Grand Prize Winner was Don Keener of Quaker Lock & Alarm (Salem, OH). Keener won a Dell notebook computer in addition to a box of 25 disc tumbler cam locks...

Grand prize winner D.F. Keener (left) with T. Muir, territory manager for National Cabinet Lock.

Fifteen lucky locksmiths won prizes valued at $350 each at American Lock Company's booth at ALOA Show in Chicago recently. First prize was a set of three fully merchandised display boards of American Lock padlocks. First prizes were awarded to: Lola Ashley, Ashley's U.S. Lock and Security, Martinsville, VA; Steve Beckman, J & K Lock Service and Supply Co., Madison, WI; John LaRue, Safe Key Security, Inc., Daytona Beach, FL; Steven Frei, Cy Drake Locksmiths, Morristown, NJ; Steve Raban, S & J Security Lock and Safe, Flagstaff, AZ; Glen Johnson, Locksmith Services, Proctor, MN; Downie Dowless, Jr., Dowless Safe and Lock Repair, Hope Mills, NC; Odell Hedrick, Mike's Lock & Key Shop, Chillicothe, OH; Joseph Schuerman, Schuerman Lock & Key, Inc., Decatur, IL; Donald Kearney, Don Kearney's Lock and Key Service, Chicago, IL; Richard Manfredi, Town and Country Locksmith, Poughkeepsie, NY; Lloyd Seliber, International Lock & Safe Co. San Francisco, CA; Lelia McNickle, McNickle the Locksmith, Tulsa, OK; Kevin Zimmerman, A-1 Lock, Springfield, IL; Steve Sanner, Joliet Lock & Key, Joliet, IL.

products. Commercial locks are made using the same stringent engineering and manufacturing processes as those required by many government standards."

That quality is evidenced by the recent Blue Chip Vendor Award granted to American Lock by the Department of Defense. To receive this award, government suppliers must maintain a quality and delivery rating of 99 percent. American has been a supplier to the Department of Defense for nearly 30 years.

As further proof of its quality, American Lock was chosen by NASA and Lockheed to supply padlocks for the Discovery space shuttle. The recent mission included model 1205 padlocks for the cargo bay (*See photograph 2.*)

While quality is a total team effort at American, Michael Rekau, Manager Process Engineering, is responsible for overseeing the logistical processes required to turn a piece of raw steel into a padlock ready for shipment.

Touring the plant with Mike revealed a system of production that not only continually monitors product quality, it also facilitates shipping times for orders. (*See photograph 3.*) In fact, once an order is placed, it takes only three to four weeks to transform a piece of cold rolled steel into a padlock sitting on the distributor's shelf.

American's padlocks, and success, are the result of a strong commitment to meeting customer needs and quality.

2. Several of the 1205 padlocks, like the one in this picture, accompanied the Discovery space shuttle on its last mission.

3. Starting with a piece of steel the lock body is machined and stamped into a padlock.

Just a little north and west of American I had the opportunity to visit Folger Adams. As locksmiths, this name is most recognizable to us through the electric strikes, with which we are familiar.

This trip, however, was spurred by the need for obtaining information on prison and detention hardware of which Folger Adams is one of this country's primary manufacturers.

At the plant, I met Ken Laas, Advertising Manager, and Joyce

Continued on page 98

BITS & PIECES

Informative Tidbits for the Security Industry

by Tom Seroogy

Over the last year several of you have called regarding disassembly of the Alpha Technology lock used for the 1991 and up Cavalier ignition. A common problem seems to occur when disassembling the lock using the procedure described in the October 1992 issue of *The National Locksmith*.

It seems that in a few instances, the procedure moves smoothly until trying to pull or remove the cylinder from the housing. No matter how much force is applied, the complaint has been that the cylinder will not come out.

After taking another look at the unit, I found that when the steering wheel lock bolt is in the extended position (and the steering wheel is locked) that the lock cam or pawl can become wedged or trapped in the lock. The only way to free it is to depress the locking bolt, releasing the pressure on the lock cam.

Because the steering wheel lock bolt is wedge shaped, the steering wheel is always free to turn counter-clockwise but cannot turn clockwise. Should the lock cylinder be hard to remove, simply turn the steering wheel to the left, or counter-clockwise to depress the lock bolt and release the ignition cylinder.

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As an FYI on the same Cavalier ignition, General Motors has recently released a bulletin regarding problems occurring during ignition removal. It seems that metal shavings from drilling the headless bolts are falling into the turn signal and wiper assemblies and creating electrical problems and/or damage.

GM is advising that these assemblies be removed before drilling the bolts.

****

Auto Security Products is introducing some new and needed products. Parts include trunk (B30-181), door (right, D30-181; left, D30-182) and ignition (C30-181) for 1990 to 1992 Lexus LS400; and the door lock (right only, D30-183) for the 1992 to 1993 Lexus ES300.

Other new door and trunk parts are available for the late model Mazdas and Toyotas as well as a new dust cover and shutter parts assortment.

Contact an ASP distributor for more information or to get an ASP catalog.

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Securing sliding windows and patio doors has always been a trade off between security, ease of installation and ease of egress. Recently two companies have shown some product with promise.

The first is Slideline, a manufacturer of a patio door lock and patio door closer. The units are easy to install and the lock allows for outside keying.

For more information contact Slideline at 619-945-0544.

The other is a simple lock that fits on both sliding doors and windows, called Stoplock and distributed by LMS Enterprises. This little device easily attaches to the door or window using 3 screws. A large hook serves as the locking device, catching on a hole drilled in the frame. Properly installed the device prevents both sliding and lifting of the door/window. LMS can be contacted at 800-645-3837.

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American Device has released a bulleting on their new line of 1310 removable aluminum mullions for use with pairs of doors. A mullion eliminates the need for vertical rod exit devices, allowing the easier to install rim exit devices to be used.

For more information contact American Device at 800-523-8483.

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New Jet keyblank releases: General Motors B82(PH) for the 1994 GM modular ignition; 1994 Chrysler Y157(PH) and Y157V; Kwikset/Titan KW9 and KW9RT rekeying tool; and the Cemex E42DN.

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Silca keyblank releases: 1994 Chrysler primary CY22 and CY22P.

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Illinois State Senate Bill 252 has been signed by Illinois Governor Edgar despite the organized efforts by the Greater Chicago Locksmith Association to stop passage until amendments were made to portions of the bill that could affect the locksmith trade.

In question has been a portion of the bill restricting the installation of any device requiring a response to a licensed alarm company and installer. The GCLA challenged the wording, stating that it includes alarmed exit devices such as those made by Detex and Alarm Lock.

Recently meeting with Jerry Robinson, CRL, CPP, the GCLA Legislative Committee was assured that this is not the intent of the law. Robinson cited that the law, in essence, has been in existence since 1974 and that no locksmiths to date have been charged with violations pertaining to an alarmed exit device installation. Robinson also stated that the term "response" by enlarge refers to an outside response by police or those having protective service and authority, such as a monitoring station

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LIGHTER SIDE

Prime Time

by
Sara Probasco

Don laid down his copy of *Service With a Smile* and looked across the breakfast table at me. "Now that you've published a book, what do you plan next, in your spare time?"

"Oh, I don't know," I said. "Maybe I'll try my hand at writing scripts for movies or television. You know, I can't think of a single TV series or movie that has featured a locksmith as a main character. Can you?"

"Well, there was Magnum P.I., of course, but as we know, he was anything but a locksmith, despite the opinions of our misguided customers."

"I could write a sit-com about a locksmith and his poor, overworked wife, struggling along in business together on the brink of poverty. I wonder if anyone would find that entertaining."

"Roseanne has made a fortune at it," Don quipped. "But if it bothers you, why not pattern your locksmith after me: dashing and debonair, a touch of Superman in his smile, running about the countryside rescuing damsels in distress?"

"Who would believe that?"

Don ignored me. "You could write true stories about various people and situations we face every day. There're lots of excitements and frustrations in this profession, as you well know. After all, people have enjoyed reading your articles about it for more than seven years, now. Seems to me, those same stories would make good visual entertainment, as well. Besides, on television, you can really get down to it. You know what they say: 'A picture is worth a thousand words.' You could educate the outside public by bringing locksmithing as it really is into their living rooms every week."

"Now, Don, you know I'm opposed to profanity, violence, and sex on prime-time TV."

Don stopped to think, and a puzzled frown creased his forehead. "I must admit locksmiths can let loose a string of 'blue words,' from time to time, and I have been known to get pretty violent at the work bench over a lock I can't get open, but sex in locksmithing? I must have been missing something."

"Well, people misunderstand things, sometimes. Remember the lady at the hotel up East who was looking over the list of classes being offered and said how nice it was that locksmiths were taking AIDS prevention so seriously?"

"You lost me, there."

"She was referring to the 'Safe Penetration' class. Remember? It's things like that you have to be careful of, when you're writing something the whole world may judge."

"I see what you mean."

"Besides, I've been hearing some pretty racy stories, lately, about women who try to seduce poor, innocent locksmiths on the job."

"No!

"Don't tell me you've never heard such tales."

"Well-l-l, now that you mention it, maybe a few, over the years. But I think they were more wishful thinking than truth, in most cases."

"Nevertheless, that's an area I like to avoid when relating locksmithing experiences to the public."

Don picked up the morning paper and began to read. Suddenly, he lowered it and looked at me over the top. "How about a mystery program that would double as a generic commercial for locksmiths? I hear all the big advertisers are working on that sort of thing for the future."

"I'm afraid I don't get your drift."

"For example, a particular company that makes spaghetti might sponsor a program. The story will center around the dinner hour. Mom and daughter are solving problems in the kitchen while they prepare the evening meal. Of course, the entre is the sponsor's spaghetti. The jar sits on the counter, the women refer to it by name as they converse, they sample it and comment on how good it is. Then the scene moves into the dining room as the family gathers and further develops the plot of the story, amid further comments about the sponsor's product. You get the idea."

"Sort of, but I don't see what this has to do with locksmithing."

"Simple. Weave a mystery story around the workings of a locksmith. You might even have a specific locksmith as a sponsor and plug his business as part of the dialogue."

"I still don't get it."

"Well, for example, the main character of the story might need to get into a locked vehicle. Conversation about how to go about it could include educating the public as to the problems of trying to get into the newer vehicles with an ordinary Slim Jim, and why it's important to summon a knowledgeable, experienced locksmith, such as a master locksmith from XYZ Safe and Lock Company."

"I don't know. That still wouldn't do a lot for the local locksmith, as I see it."

"OK, so have one of the characters ask, 'Do you happen to know their phone number?' and the other says, 'Yeah. They gave me a free-key card the last time they opened my car for me.' He reaches into his billfold and takes out the card, ta-daa! 'For twenty-four Hour service,' he reads, 'the number to call in San Antonio is 123-4567, XYZ Safe & Lock Company.' They call XYZ, a locksmith comes out right away, solves their problem satisfactorily, and the story proceeds. No commercial breaks, nobody switching channels between story segments, just one continuous story with subtle advertising worked into it at unexpected moments. You know, this could start a whole new trend. The possibilities are endless."

"Maybe," I said, getting up from my chair and starting for the kitchen.

"Hey, where are you going?" Don asked.

"To get a big drink of water. If this is the new programming trend, it looks like it could be a long, dry season for television-watchers."

TECHNITIPS

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of the possible cut configurations of the chart, and will be left with only five possibilities. If the first cut is a 1 depth, the second cut can be no deeper than a 3 depth, because the "maximum adjacent cut difference" can be no more than two depths. Make another try-out key using a 1 depth in the first position and a 3 depth in the second position. The remaining positions are duplicated from the try-out key. Try the key in the cylinder to insure that it operates. Study the remaining unknown positions of the chart. Position five dominates the remaining combinations. Four of the five combinations have a possible 2 depth in this position. Cut position five to a 2 depth and try the key in the cylinder. If the key does not operate the cylinder, the true combination is found. It is the only combination with a 1 depth in this position (Combination number 1 of the table is the only remaining combination with a 1 depth in position five.). If the key does operate the cylinder, the true combination will be one of the four remaining combinations in the chart with a 2 depth in position five (These are combinations 2, 3, 4 and 5.). Move on to another position, with the same key. Always take the lower depth. In no time you will have a working key.

By studying and understanding the two basic rules that apply to all GM codes (cut configurations), we can eliminate a substantial number of possible combinations, and simplify the key making process. I hope this Tip helps fellow locksmiths that are using GM try-out keys.

Darryl Ballard
Washington, D. C.

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BITS & PIECES

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and/or guard service, across public streets This excludes those devices not linked to such a service.

The GCLA is currently studying the feasibility of introducing future locksmith legislation.

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Apparently, locksmiths and licensing are a never ending story.

Other areas currently moving towards requiring licensing for locksmiths include Anchorage, Alaska, the state of Louisiana, and the state of North Carolina.

The California Association of Lock & Security Equipment Contractors (CALSEC) is fighting bill AB936 sponsored by the California Bureau of Collection and Investigative Services of the Department of Consumer Affairs.

According to CALSEC this new bill creates dual licensing and regulation for California locksmiths who are currently required to be licensed and regulated by the California Contractors State License Board.

We would appreciate advisements of change and status of laws and legislation affecting (or soon to affect) your particular state. Direct them to Tom Seroogy, Managing Editor of *The National Locksmith*, 1533 Burgundy Pkwy, Streamwood, IL 60107.

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Arius, Inc. has released its newest fire products handbook. The 80-page book contains part numbers, descriptions and prices for hundreds of the fire-related products that Arius distributes. It also includes articles and technical tips by industry experts, and useful product specification grids. New this year is a chapter on products that meet the requirements of the Americans with Disabilities Act. To receive a copy of the handbook, send your name and address to: Arius Fire Products Handbook, 959 Concord St., Framingham, MA 01701-9002.

INDUSTRY INTERVIEW

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Malloy, Customer Service Manager. Touring through the factory revealed the manufacturing of an array of equipment, including lever locks, mogul cylinders and, of course, the electric strikes.

Cutting, storage and distribution of both the large paracentric prison keys, and Mogul keys are assigned to a secure area. The release of the keys and keying systems is controlled very tightly. Requests for keys are meticulously checked and delivery verified.

Intriguing is the size of the equipment and keys. Obviously built for abuse, the hardware is often a heavier version of familiar equipment. Mogul cylinders, for example, are larger versions of the standard mortise cylinder. And, like the standard mortise cylinder, Folger Adams offers these cylinders in varying degrees of security and restriction.

Typically, locksmiths have seen prison work as a closed market. With the need for faster competent service, however, we are making slow yet progressive inroads into this field.

Of interest to the locksmith who wishes to work in this market are the seminars offered by Folger Adam Company. These week-long seminars cover the installation and service of all Folger Adams equipment. For information on these educational opportunities, call the Folger Adam Co. Project Engineering Department at 708-739-3900.

Speaking of prison, let's head west where we can be put into Solitaire. More correctly, the Solitaire access control system by Marlok.

Nestled in a small industrial area of St. Charles, Marlok manufactures one of the more locksmith oriented access control systems I've seen.

The reason. The system uses keys. This makes change-over easy for the customer because people are already accustomed to using keys. It also eliminates the need for using a key and a card.

Unlike other keys, however, there are no cuts or depths to worry about. Instead, the key operates the lock through holorith technology. In the blade of each key are rows of holes. As the key is inserted into the lock the placement of each hole is read, allowing or denying access.

Making things simple for the locksmith, the reader/lock can come in the form of a mortise or rim cylinders. This means there's no cutting for strikes or other electrical hardware.

A knobset variation is also available and is compatible with the Schlage D series knob sets. Both stand alone and multi-door systems are available.